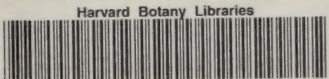


THE
RCHID
ORLD



3 2044 105 172 084

Ger

Eng
0-2



HARVARD UNIVERSITY

LIBRARY

OF THE

GRAY HERBARIUM

Received

23 Jan. 1923

Bought



THE ORCHID WORLD.

A Monthly Illustrated Journal entirely devoted
to Orchidology.

EDITED BY
GURNEY WILSON, F.L.S.,

*Member of the Scientific and Orchid Committees of the
Royal Horticultural Society.*

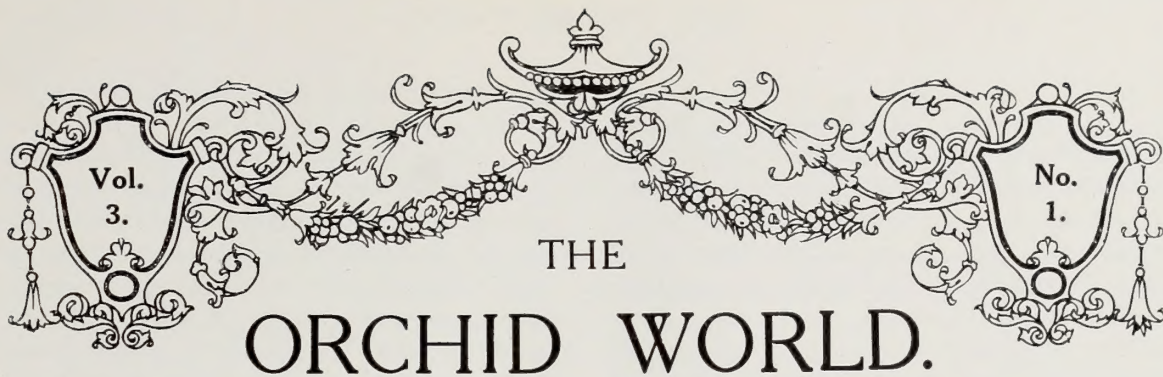


VOL. III.
With many Illustrations.



HAYWARDS HEATH, SUSSEX.
1913.

ALABASTER, PASSMORE & SONS, LTD.,
PRINTERS,
LONDON AND MAIDSTONE.



THE ORCHID WORLD.

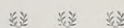
OCTOBER, 1912.

NOTES.

MEDALS FOR ORCHIDS.—At the Carlisle and Cumberland Horticultural Society's Show, Sept. 4th and 5th, a Silver Medal was awarded to Sir Benjamin Scott, Mayor of Carlisle, for a well-grown group of Orchids. At the Glasgow and West of Scotland Horticultural Centenary Show, September 4th, 5th, and 6th, Messrs. J. Veitch and Sons were awarded a Gold Medal, and Messrs. Sander and Sons received a First-class Certificate of Merit for collections of choice Orchids.



ORCHID PRIZES.—In connection with the Brussels Exhibition, October 26th, 27th and 28th, Mons. Firmin Lambeau is giving a Gold Medal value 100 francs for the best collection of *Cattleya* and *Lælio-Cattleya* hybrids, and Mons. Ch. Dietrich offers a Gold Medal of equal value for the finest collection of 25 species, varieties or hybrids. Three Gold Medals are also offered for the best tables decorated with Orchid flowers. The Manchester Orchid Society has received a handsome Silver Trophy, the gift of Mr. Eric F. Davidson, which will be awarded for *Odontoglossums* and their hybrids.



MAXILLARIA TENUIFOLIA.—Amateurs will find this species one of the easiest to grow, for it is in no way very particular as to the temperature or atmosphere of the house. A somewhat shady place in a greenhouse where

the temperature ranges from 50 to 70 degrees will always ensure the plant making satisfactory growth. This species is a native of Mexico, where it was found by Theodore Hartweg, an excellent naturalist, employed by the Royal Horticultural Society, in Mexico, upon a mission which would have produced most important additions to our gardens had not his collections been detained at Tampico in consequence of the French blockade of that port. This plant, which flowered so long ago as 1839 in the Society's garden at Chiswick, has upright stems upon which are many bulbs, the flowers appearing from the axils of the scales covering the stem. The individual blossoms are about an inch and three-quarters across, of dull yellow colour heavily spotted with crimson, the apices of the segments being almost entirely covered with the same colour.



CYPRIPEDIUM GODEFROYÆ.—Introduced from Cochin China by M. Godefroy, of Augentieul, near Paris, this species first flowered in November, 1883, and at the Orchid Show and Conference held by the Royal Horticultural Society, 1885, Mr. Wm. Lee, of Downside, Leatherhead, received a First-class Certificate for a strong plant which he exhibited on the occasion. Like *niveum* and *concolor*, it grows wild on the calcareous rocks on the side of a mountain, where it obtains a considerable amount of sunshine.

A USEFUL CATALOGUE.—Nothing is more conducive to the advancement of Orchid culture than properly constructed houses. The new illustrated catalogue issued by Messrs. Wm. Duncan Tucker and Sons, Ltd, is full of interesting photographic reproductions of all that appertains to horticultural buildings. Consisting of 120 pages, it forms a book worthy of every Orchid grower's careful perusal, for many encouraging suggestions are obtainable from the illustrations.



The late J. S. Bergheim.

OBITUARY.—We much regret to record the death of Mr. J. S. Bergheim, of Belsize Court, Hampstead, who died on the 10th ult., in his 70th year, the result of a motor-car accident. Mr. Bergheim was a keen naturalist, being especially interested in the various scientific points of plant life, and was never more happy than when discussing with members of his large circle of friends one of the many subjects he had studied. Almost every year he made a journey to some distant country, and

his return never failed to bring many additions to the collection of curiosities at Belsize Park. His Orchid houses contained numerous specimens, mostly of botanical and scientific interest, which he had from time to time collected. At the Royal Horticultural Society he often exhibited specimens, and as recently as August 27th he received an Award of Merit for *Angræcum O'Brienianum*. The scientific aspect of plant reproduction continually engaged his attention, and almost to his last day he endeavoured to discover the use of the long tail-like gland attached to the pollen masses of *Ornithocephalus grandiflorus*. Mr. Bergheim was a high example of one of Nature's apt students, and he will be sadly missed by the many whom he oftentimes entertained.



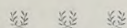
ODONTOGLOSSUM CRISTATUM.—A native of Ecuador, this species is but rarely seen in cultivation. The small flowers, seldom more than two and a half inches across and of a light yellow colour almost covered with dark brown blotches, have little to recommend them for decorative effect. Nearly all the small-flowered species have one or two prominent specific characters which no amount of hybridisation is, apparently, able to exterminate. In *cristatum* the multi-partite spiny crest of the labellum is developed to a remarkable degree, and its influence is clearly discernible in the hybrids of which it is the progenitor. Ecuador is also the home of *Odontoglossum Kegeljanii*, better known in gardens as *Polyxanthum*, which occasionally becomes intercrossed with *cristatum* and produces the natural hybrid known as *cristatellum*, and this, apart from other peculiarities, interestingly demonstrates the strong inheritable nature of the latter species' spiny crest. In order to further test *cristatum*'s power Mr. de Barri Crawshay united *cristatellum* with *Odontoglossum Crawshayanum*, the latter, a garden-raised hybrid between the two large flowering species *Hallii* and *Harryanum*. The spiny crest, as anticipated, not only appeared as strongly developed as ever in the resulting hybrid, known as *Amneris*, but also carried along with it much of the *Kegeljanii* form and colour markings.

THE ORIGIN OF ORCHID BASKETS.—Sir Joseph Banks, one of the first organisers of the Royal Horticultural Society, may be said to have originated the idea of growing Orchids in baskets. He practised the following method with considerable success in his hot-house at Isleworth. The plants were placed separately in light cylindrical wicker baskets or cages of suitable width, of which the framework was of long slender twigs wattled together at the bottom, the upper portion being left open in order that the plant might extend its growth in any direction and yet be kept steady in its place, the ends of the twigs having been tied together by the twine that suspends the whole to the wood-work of the stove. A thin layer of vegetable mould was strewed on the floor of the basket on which the rootstock was placed, and then covered slightly over with a sufficiency of moss to shade it and preserve a due degree of moisture.



LÆLIA CRISPA.—The exhibiting by Messrs. Stuart Low and Co. at a recent meeting of the Royal Horticultural Society of a large specimen *Lælia crispa* with no less than 45 buds and flowers is in these days worthy of note. Lindley gave it the name *crispa* in reference to its curled or crisped petals. Sir Joseph Paxton, in his *Magazine of Botany*, Vol. V., p. 5, gives a good figure of a seven-flowered spike growing at Chatsworth in the summer of 1837. He regarded it as a striking illustration of the high degree of perfection to which Orchidaceous plants would eventually be brought when their habits, and the treatment they require in cultivation, were understood among the admirers of this the most beautiful, and by far the most interesting, family of plants in the vegetable world. Paxton also mentions the fan-like arrangement of the flowers upon the stalk, the depth of richness in the velvety purple of the lip, and the snowy whiteness of the undulated sepals and petals contrasted with the deep green of the leaves. The species is a native of Rio Janeiro, whence it was sent, in 1826, to the London Horticultural Society by Sir Henry Chamberlayne, Bart. In early days, when it was the custom

to grow almost all Orchids in great heat, this species, then known as a *Cattleya*, was regarded as a notable exception to the rule, and it is interesting to read Paxton's remark that "*Cattleyas* thrive best in a degree of heat below that required for the major part of Orchidaceous plants; they are best set at the coolest end of the house, for they are too few in number to have a house appropriated to themselves." What would Paxton have said to present-day *Cattleya* houses? Our difficulty is not how to find sufficient plants, but how to determine which species and hybrids to discard.



ORCHID HOUSES.—Admitting that baskets and blocks are injurious to plants growing in pots beneath, the question arises, what is to be done with the basket and block tribes? In my opinion it would be good policy, in the case of two houses being considered necessary, to have one all stages or shelves for the pots and boxes, etc., and the other devoid of shelves, and fitted up to suspend the blocks and baskets from. I am perfectly aware it will be said that this arrangement would not be consistent with the habits of the plants, or to the climate they come from—those from the Eastern hemisphere, as is well known, requiring generally both more heat and more moisture. Now, this will, and may be said with truth; and, at first sight, the objection appears insuperable. But for my own part, I should not fear of being able so to construct a house, as that both heat and moisture should be much greater at one end than the other; and that all intermediate climes should be fairly represented between, as far as the wants of the Orchids required it. Now, in the block or basket house, provision might be made for a much greater amount of atmospheric moisture than in the pot-house; and, indeed, there would be no absolute necessity for having the house exclusively arranged for blocks and baskets; several modifications of the ordinary lean-to or span might be taken into consideration, which would in a proper degree combine, in part, shelf culture for special matters.—R. ERRINGTON, 1850.



Cypripedium callosum Sanderæ, a specimen plant grown by Mr. H. G. Alexander, in the Westonbirt Collection.

CYPRIPEDIUM CALLOSUM SANDERÆ.

CYPRIPEDIUM CALLOSUM was imported from Siam by Mons. Regnier, Fontenay-sur-Bois, France, about the year 1886. Some six or seven years later the albino form *Sanderæ* was discovered. During the autumn of 1893 it flowered in Mr. R. H. Measure's collection at Streatham, and in 1894 Messrs. Sander and Sons exhibited it at the Temple Show, when it was awarded a First-class Certificate. The above illustration depicts a specimen plant in the Westonbirt collection, where it has been so successfully grown by Mr. H. G. Alexander. The strong habit of the plant is well displayed, the large graceful white flowers are elegantly striped

with emerald-green, and make a pleasing contrast to the many rich purple and red tinted varieties which prove such useful adornments to our Orchid houses during the autumn months. *C. callosum Sanderæ* and *C. Lawrenceanum Hyeanaum* are the parents of the beautiful albino *C. Maudiaë*, an illustration of which was given in the ORCHID WORLD, Vol. II., p. 206. *C. Holdenii*, figured in Vol. II., p. 60, is the result of crossing *C. Maudiaë* with *C. callosum Sanderæ*, and is considered one of the largest albino *Cypripediums*. *C. Memoria Alma Gevaert*, produced by crossing *C. Lawrenceanum Hyeanaum* with *C. Maudiaë*, was exhibited by Messrs. Armstrong and Brown

at the Royal Horticultural Society, August 27th, 1912. It is a very grand albino hybrid. We have, therefore, two albino species producing an albino hybrid which has again been crossed with both its parents, making, in all, three elegant albino hybrids.

AMONG THE ORCHIDS.

A CHELSEA MEMORY.

By INEZ DICKINSON CUTTER.

WHAT a wonder world it was, that World of Orchids! There were slender green trumpets to herald the gatherings of woodland presences. There were orchid drinking horns with wine-red edges; curious Indian vessels at once young and hoary, brilliant and sad; and dark orchid cups filled with opiate dreams.

There was Nature's first thought of a butterfly and her latest ideal, gorgeous and velvet-winged. There were soft nests pillowing grey-green eggs from one of which a yellow bird-orchid had just emerged. There were strange orchid creatures, spotted and striped, crouching in green lairs, purposeful and sinister.

There were mischievous orchid fairies, violet clad, dancing with rhythmic arms outspread, in a hidden dell, and through deep shades one caught glimpses of the fair faces and green garments of a group of orchid nymphs, pressing close together, breathless, as if startled by some human sound.

There were tiny infant faces in frilled caps, and near them quaint, old-lady orchids, wise and somewhat gloomy, their long bonnet strings untied. There were maiden orchids gazing at life in a white wonder that was not yet questioning; there were pallid bride orchids, and brides with a faint rose flush, half of shrinking and half of longing. There were orchids which offered cool deeps of quiet tenderness and blooms of open enticement, of passionate, intoxicating fulness. There were orchid lasses on a country holiday dressed in homely, patterned fabrics, and grand orchid

ladies in all the richness of velvet and plumes and the daintiness of frills and fringes

There was a troupe of palest pink blooms advancing softly, breathing harmonies. These were united by sympathy, yet were separate as souls. There were solitary blossoms of profound whiteness, orchid mystics, whispering of the deeper knowing.

There were small yellow orchids, brilliant as light, that had drunk the spirit of the sun. There were sprays of snowy orchids like a waterfall's foam, and orchid bushes that flamed yet were not consumed.

There were lovely and fantastic orchid forms not to be named, delicate fancies, Fra Angelicos of wings and colour wrought by Nature in gentle mood; rich marvels that had woven into themselves the very mysteries of the dark earth; piercing, mind-like blossoms, keen as golden rays, that could leave no fine secret of Nature's unpenetrated; and here and there velvety eyes peered and questioned.

What was there not in that orchid world,—insect and bird and beast, wood sprite and maid and matron, sensualist and soul that aspired! Symbols were they, the orchids, of the world we know.

NEW HYBRIDS.

LÆLIO-CATTLEYA RUBIGINOSA.—C. Schilleriana × L. Boothiana has produced this hybrid in the Rosslyn collection from whence it was exhibited by Mr. H. T. Pitt at the Royal Horticultural Society, September 10th, 1912. Although the specific name indicates "rusty" the colour of the sepals and petals is a shining crimson-purple. The broad and open labellum is of a rosy lilac-purple, with darker veining of the same colour.

LÆLIO-CATTLEYA VENUSTA.—This uncommonly coloured hybrid between L.-C. Schilleriana and L.-C. Aphrodite has been raised and flowered by Messrs. Sander and Sons. The plant carried a spike of five flowers, almost white, but with the larger part of the sepals and petals handsomely marked with distinct rose-purple blotches. The labellum is bordered and blotched with the same colour.

LÆLIO-CATTLEYA FRED. GOTT.—The result of crossing *C. bicolor* with *L.-C. Martinettii*. The large flower has bronze coloured sepals and petals with a slight rose flushing; an elongated bright purple lip with a yellow spot exactly under the stigma of the white column. Raised by Messrs. Sander and Sons. This hybrid is a near relation, both in name and parentage, to *L.-C. Walter Gott* (*C. bicolor* × *L.-C. blechleyensis*).

LÆLIO-CATTLEYA MRS. DONALD MACMASTER.—In this attractive hybrid between *C. aurea* and *L.-C. luminosa* the large proportion on the former parent is visible in the golden-yellow sepals and petals which are slightly suffused with reddish-rose. The broad, open labellum is purple colour with fine gold lines

at the base. Exhibited by Mr. Francis Wellesley at the Royal Horticultural Society, September 10th, 1912.

LÆLIO-CATTLEYA MEMORIA H. A. TRACY.—This hybrid was mentioned in the *ORCHID WORLD*, Vol. I., p. 226, as a plant in the "Fair-lawn" collection, where it flowered, but without being exhibited. The parentage is *L.-C. Canhamiana* × *C. Hardyana*, and the resulting hybrid carried a very large flower of fine substance. Sepals and petals rosy-lilac; the labellum exceedingly well developed, crimped at the edge, of intense purple-crimson, with yellow disc and veining at the base. Exhibited by Mr. H. S. Goodson at the Royal Horticultural Society, September 10th, 1912.

THE ORCHID CONFERENCE OF 1885.

THE last Orchid Conference, organised by the Royal Horticultural Society, was held at South Kensington, May 13th, 1885. At that time it was considered one of the greatest successes ever known in Floral Exhibitions, and one, moreover, with a special object in view, every point of which was brought to the desired conclusion. Besides an extensive and splendid show, lasting two days, there was a conference attended by a numerous and influential body of Orchid growers, and which tended to advance the objects of the Society, viz., to exhibit a representative collection of Orchids in flower, together with any other objects desirable for their culture, and to spread a knowledge of their habits and requirements.

At the conclusion of the Conference Mr. Holbrook Gaskell, a leading Orchid amateur of Liverpool, whose name is to this day commemorated in *Cattleya Gaskelliana*, remarked: "I strongly hope that the Council of the Royal Horticultural Society will see their way clear to make this an annual conference. I am quite sure that the oftener it is held the more largely it will be attended." Yet notwithstanding the success of the enterprise the Fellows of the Society have waited more than 27 years for what might and should have been an annual event.

However, much as an annual conference would have, undoubtedly, stimulated Orchid growing and assisted amateurs in obtaining a better knowledge of the various requirements of the different genera, the fact remains that Orchid growers have largely increased in number, not only in this country but in every civilised part of the universe.

To what then may such a great advance in this pleasurable pursuit be attributed? First and foremost to the beautiful coloration of the fantastical flowers which Orchids possess; and, secondly, to the possession of a rare, and oftentimes unique object of great value that is highly prized and admired by brother horticulturists. There is a pleasure in admiration.

The frequent discovery of a new species, or even albino forms, for many years created an entrancing interest, but the supply of these, the designing of which had occupied probably thousands of years, would not hold out for ever, the limit had been almost reached, and Orchidists were looking for pastures new upon which to turn their attention.

With the year 1885 amateurs commenced to appreciate the work of the hybridists who had recently devoted their attention to the Orchid family. And this none too soon, for although about 60 genera and some 350 species and varieties were represented at the last

Conference, there was not only a great sameness in the many purple, or white flowers, but the specific vigour of the plants was never equal to the unnatural conditions of cultivation to which amateurs, in their partial ignorance of the plants' requirements, subjected their specimens. Hybrids alone possessed the necessary constitutional strength.

To the hybridist, therefore, much of the present popularity of Orchid growing is due. The intercrossing of species which in themselves have little beauty has more than once produced an excellent result: the rich colouring of a small flowering species when united to a member of the same or near related genus possessing large but poorly coloured flowers has often resulted in a hybrid of great merit: and the cultivation in the same house and final hybridisation of species which, geographically, are separated by thousands of miles is an achievement worthy of every reward.

To fully describe the remarkable transition that has taken place since the last conference would be a laborious work, but a few outstanding facts cannot be left unmentioned.

In 1885 only some half-dozen *Dendrobium* hybrids were known, one of which, *D. Ainsworthii*, is still familiar to many. Even *D. Cybele* had not yet flowered, although several large plants existed. Who can now correctly state the total number of existing hybrids in this genus. A recent and great success has been the production of yellow flowering hybrids by the use of *D. signatum* and *D. aureum*, and *D. chessingtonense* may be considered as the finest example.

Cattleyas included less than a dozen hybrids. *C. Hardyana* was only known as a natural hybrid, and rare as it was, no one then thought of the great reward that awaited the hybridist who produced a white sepaled and petaled variety by the use of *C. Warscewiczii* var. *Frau Melanie Beyrodt*. The creation of such Orchids as *C. Iris* and *C. Venus* was beyond the wildest dreams of the workers who were unable to produce anything else than poor shaped flowers of a dull purple colour. True, there were albino species, but albino hybrids in those early days were among the Orchids still unanticipated.

Phalænopsis species had been united, and a few hybrid plants had been raised in different collections, but not one had flowered before the Conference date. It should, however, be mentioned that one or more named natural hybrids were already under cultivation.

Masdevallia seedlings were few and far between, no doubt owing to the many unsuccessful attempts which had been made to intercross the various sections. The *Chimæra* forms, so distinct from all others, always refuse to be united to any members of other sections. Many amateurs will agree that the flowers would remain most effective when left in their specific form.

Lælio-Cattleyas had not reached the high state of popularity which they now enjoy. Yet, strange to say, the early ones included four which at the present time are still among the best hybrids. These are *bella*, *callistoglossa*, *Canhamiana*, and *Dominiana*.

Selenepedium hybrids were known at an early date, and *Cypripediums* were best represented by *C. nitens*, this the result of crossing *insigne* with *villosum*.

Odontoglossum hybrids were restricted to the natural ones which, from time to time, appeared in importations of the various species. A period of several years elapsed between the date of the Orchid Conference and the flowering of the first one artificially raised.

Calanthes were more than proportionally represented, possibly owing to the comparative ease with which they can be raised, and to the short time which they require to attain flowering condition.

Hybrids of *Sophronitis grandiflora* were unknown. It was not until August, 1886, that the first *Sophronitis* hybrid, *S.-C. Batemaniana*, *C. intermedia* × *S. grandiflora*, flowered.

Last, but not least, the establishment by the Royal Horticultural Society of the Orchid Committee, March 26th, 1889, created one of the most important landmarks in the history of Orchid cultivation. Before this date all Orchids exhibited at the Society's meetings were judged by Members of the Floral Committee.



Mr. D. Cameron (on the right) superintending the cutting of Osmunda fibre for Messrs. Sander & Sons, in their own lands, State of New York, U.S.A.

OSMUNDA FIBRE.

OSMUNDA fibre has almost entirely taken the place of peat. This is not surprising, for the great difficulty experienced in obtaining the latter material in really good fibrous condition has always been a genuine cause of complaint among Orchid growers.

With Osmunda fibre there is but little waste, not one-tenth part of that found in the usual peat, however good it may be. The fibre is of longer lasting quality, and when used for Cattleyas and their hybrids results beyond all expectation have been achieved. Little wonder then that its use has become so universal.

Various atmospheres and cultural methods will demand some slight difference in its usage. Some growers use it in its imported state, others obtain better results by the

addition of sphagnum moss, while not a few have reaped considerable success by using a large proportion of it in their special compost.

Some amateurs completely fill the pots with Osmunda; others fill one-third of the pot with crocks, yet each maintains that his method produces the finest results. The fact is that in Osmunda we have a material eminently suitable for all growers and all methods. The one thing needed is that every grower must work out his own success by experimenting with the material in accordance with the class of Orchid and the atmosphere with which he has to contend.

In Osmunda, as in all fibres, no matter what they are, several grades will be discovered, and this in no way detrimental to its welfare, but, in fact, advantageous, for the finest may be selected for tender seedlings and the

stronger or coarser kind for the larger plants that have reached flowering size.

All plants, more especially Orchids, possess the power of adapting themselves, and this in no small way, to a changed condition of surroundings. But for this aptitude many of our finest plants would long since have perished and remain forgotten.

The adaptation of the plant does not take place at a rapid rate, and, great as the possibilities are, all extreme changes must be carried out with discretion, or failure will be our only reward. Thus we may learn the reason why poor results oftentimes follow the taking of a delicate plant from a soft compost of leaf-soil or moss and placing it immediately into Osmunda fibre. True it is that the plants eventually make sturdy growth, but if the compost had been gradually altered during successive pottings and the plant thereby allowed to slowly become accustomed to its better and more lasting compost a much more rapid reaching of the flowering condition would be produced, for the plant would receive the minimum amount of check.

How often should water be applied is an important question frequently asked by amateurs. No definite answer can be given, for so many factors, such as size or kind of pot or basket the plants are growing in, the amount of atmospheric moisture present, and the condition or vigour of the plant, all have some bearing on the question.

Excess of moisture at the root inevitably brings rapid decay of these organs of nutrition, while an overdryness frequently produces a stunted habit of growth. The happy medium is only produced by careful attention and



The packing of a large consignment of Osmunda fibre for Messrs. Sander & Sons, State of New York, U.S.A.

studying the plants' natural requirements and climate. Stiff and fleshy growing species will stand and, in fact, delight in a somewhat dry compost, yet others with thin and delicate foliage require an almost constant supply of moisture. Of the former class a good example is *Brassavola Digbyana*, and of the latter *Odontoglossum crispum*.

The porous nature of Osmunda readily admits of a larger supply of water being given to the plant than if the compost consisted of leaf-soil or soft peat; but here again discretion is required, for much will depend on whether the fibre is loosely or very tightly packed in the pot. An overmoist condition encourages the growth of slime and other low forms of vegetable life which greatly retard the aeration of the compost, and nothing is more distasteful to a plant than to be kept in a sour, badly ventilated compost.

Large solid masses of Osmunda make useful receptacles upon which to place certain

Orchids requiring a pendulous position in which to grow. Suitable species for this method are *Scuticaria Steelii*, *Epidendrum falcatum*, and *Cattleya citrina*. The only extra expenditure is a piece of stout copper wire firmly inserted in the fibre and with its free end bent into a hook. Orchids grown

in this manner have a peculiar and tropical appearance all their own, and cannot fail to please both cultivator and visitor, for they prove a source of interest but rarely seen in ordinary greenhouses devoted to general florists' flowers.

THE WEST BANK HOUSE COLLECTION.

HEATON MERSEY, LANCS.

TWENTY-ONE years have passed since the first Orchids were obtained for the commencement of this now well-known collection, and it was sixteen years ago that the plants were removed to West Bank House, the present residence of J. Leemann, Esq. It would, indeed, be difficult to find a more comprehensive assemblage of rarities, more especially so in the albino section, for there are no less than 500 strong plants of white *Cattleyas*, including the finest forms of *Warneri*, *gigas*, *labiata*, and *Gaskelliana*.

Form and size are of paramount importance in this collection. Albino forms of the small growing species, as, for instance, *Lælia pumila alba* and *Cattleya Percivaliana alba*, are not represented, but their place is more than filled by those with larger flowers. *Cattleya Mossiæ* albinos include all the well-known varieties and a few which are unique. It is impossible to describe their remarkable form and beauty.

The extensive range of glass houses comprises a section entirely devoted to Orchid culture, and consisting of eight span-roof houses, each 50 feet in length, and a commodious lean-to house. A well-arranged potting shed with ample means for securing a good light is also provided, and a ready reference to the flowers is always obtainable from the numerous paintings which are carefully and methodically stored in several cabinets. The somewhat unique construction is the result of Mr. Leemann's careful investigation and long experience in matter appertaining to Orchid culture.

Above the ordinary roof of the *Cattleya*

houses a second one, nearly similar, has been erected, the intervening space being about seven inches. Along the bottom and a few inches above the rain-water gutter is a one-inch hot-water pipe which maintains the intervening atmosphere at a comfortable temperature; in fact, even in the depth of winter, when twenty or more degrees of frost have prevailed, it rarely falls below 45 degrees. It will thus be seen that, in plain words, a warm and suitable atmosphere has been created in which the Orchid houses are placed.

By this method of construction a continual day and night ventilation is possible, not only in summer, but all through the winter months, for only air from within the enclosed space is allowed to reach the plants. Also, on account of the cold night air being unable to obtain access to the inner glass all condensation of moisture is done away with, and drip, so detrimental on cold winter nights, is almost unknown.

The hot-water heating apparatus is on a duplicate system, separate boilers with their own mains ensuring an even sustainment of the various temperatures. There is, therefore, every safeguard against accident, and consequent loss through frost entering the houses.

The *Odontoglossum* houses have single roofs, and along the apex is a perforated pipe by means of which a continual stream of cold water may be allowed to flow over the glass. This quickly lowers the inside temperature and proves a most effective device during the hottest days of summer.

The corridor, 130 feet in length, is elegantly decorated with *Passiflora princeps*, the long racemes of red flowers hanging gracefully

from the roof, Bougainvilleas, and baskets of Davallias. At the end of this useful construction is the first Cattleya house, and here may be seen numerous plants, mostly hybrids, all of the finest parentage. The compost in which they are grown consists of equal parts osmunda and A.1 fibre with a small addition of sphagnum moss. Most of the plants are placed on stout wire stands, a method which effectually prevents slugs from reaching them. In one corner of the house are numerous back bulbs of the choicest varieties; these are given every inducement to start growth, and all those showing signs of life are subsequently placed in small pots. In another corner are various small seedlings, needless to say all resulting from the use of only the very best varieties.

Several other houses are devoted to Cattleya hybrids, those of aurea being greatly admired by Mr. Leemann. Small flowering hybrids find little favour in this collection; these and others which are of poor colour are soon expelled to make room for the better ones which constantly require more room as they advance in size.

It would be impossible to describe the many blotched varieties of *Odontoglossum crispum* or even the superb hybrids in this collection, so varied and beautiful are their flowers. The *Odontodas* are well represented, and on account of their brightly coloured flowers give additional charm to the house.

Cypripediums fill another large span-roofed house, but give but little pleasure to their owner. Here Mr. Leemann substantially differs from the views of many Lancashire Orchid amateurs, for he in no way considers Cypripediums equal in beauty or usefulness to the large flowering Cattleyas of which he has such a superb collection.

The original plants of many hybrids are of great interest, for, although they can hardly be called type specimens, as in the case of species, they show what advancement, if any, has occurred during recent years. In a few instances the originals have not yet been surpassed; in others, by the assistance of better parental varieties considerable improvement has been effected. These, and many

other matters, all show the great amount of interest obtainable from an Orchid collection.

The atmosphere of Lancashire cannot be considered an ideal one for Orchid culture, but largely owing to Mr. Leemann's forethought in the special construction of the houses the general condition of the plants is really astonishing. Young seedlings make rapid headway, small propagated plants quickly advance in size, and old-established specimens maintain a healthy condition rarely seen in other collections. Almost the whole of the Orchid bloom is cut twice a week for indoor table decoration.

With such a large and important collection it is impossible to individualise any special plants or varieties; close inspection alone will reveal the numerous specimens and the high state of good culture, largely due to the unremitting careful attention of Mr. S. Smith and his principal assistant, Mr. Chambers.

Lastly, it should be mentioned that Mr. Leemann possesses a remarkable love for his garden. The beautifully laid out grounds with the masses of ornamental foliage, specimen hollies and choice conifers; the thousands of rhododendrons in all the best varieties; the lake with its water-lilies, and close by the tastefully arranged rose beds, all reflect his personal interest. Spacious vineries and well-constructed fruit houses may also be seen.

As an indoor recreation Mr. Leemann has a marvellous collection of gorgeous tropical butterflies and moths, numbering between four and five thousand specimens, and including all the rarest known species. His interest in this subject may encourage others to appreciate another of the many wonders which Nature has provided for us.

MEXICAN LÆLIAS.—About 750 plants from the "Rosefield" collection will be sold by Messrs. Protheroe and Morris, at their sale rooms, on October 25th. Mr. de Barri Crawshay intends to cultivate large specimen *Odontoglossums* in their place, and for this reason the house will be suitably rebuilt.

HYBRIDS OF *CATTLEYA LAWRENCEANA*.

THE interesting account of Mr Kromer's journey through British Guiana to Brazil in search of *Cattleya Lawrenceana* ran through many pages of our last volume. The illustration in the *ORCHID WORLD*, Vol. II., p. 200, of an albino variety of the species gives a good idea of the shape and form of the flower, the outstanding distinguishing features being the rather narrow, crisped petals, and the uncommonly formed lip, much resembling the mouth of a trumpet. These specific characteristics are largely inherited in all the hybrids, so much so that little difficulty is experienced in at once detecting its parental use.

This species, on account of its rich rosy-purple flowers opening during the early spring time, has been much used for the production of attractive hybrids likely to flower when the important Temple Show is being held. *Lælio-Cattleya Hyeana* may be mentioned as a notable example. The following list enumerates 27 various hybrids of *Cattleya Lawrenceana* which have been recorded, no less than six of which fall to the credit of Mr. C. Ingram, of Godalming, Surrey:—

Cattleya William Murray (*Mendelii* × *Lawrenceana*) was the first hybrid of the species to be flowered. It was exhibited by Mr. Norman Cookson, at the Royal Horticultural Society, May 25th, 1893, when a First-class Certificate was awarded.

C. Cecilia (*Lawrenceana* × *Trianae*) was flowered by Mr. C. Ingram, in the autumn of 1895.

C. Lawremossiae (*Lawrenceana* × *Mossiae*) appeared in Mr. R. Brooman-White's collection, April, 1896. The labellum was dark crimson in colour.

C. Preciosa (*Lueddemanniana* × *Lawrenceana*), and *C. Sedenii* (*Lawrenceana* × *Percivaliana*) were both shown by Mr. C. Ingram at the Royal Horticultural Society, May 5th, 1896. And on October 13th, 1896, the same amateur obtained an Award of Merit for *C. Jupiter* (*Lawrenceana* × *Warscewiczii*).

C. Mars (*labiata* × *Lawrenceana*) was exhibited at the Royal Horticultural Society,

October 12th, 1897, by Messrs. Sander and Sons.

C. Firebrand (*Schilleriana* × *Lawrenceana*) was shown by Mr. C. Ingram at the Hybridisation Conference held in the Great Vinery, Chiswick, July 11th, 1899.

C. Jussieu (*Lawrenceana* × *Schroderae*) was flowered by Mons. Ch. Maron, June, 1902.

C. Lawreglossa (*amethystoglossa* × *Lawrenceana*) first flowered in the collection of the Right Hon. Joseph Chamberlain, March, 1905.

C. A. Dimmock (*aurea* × *Lawrenceana*), the subject of our illustration, flowered in the spring of this year in Mr. Clement Moore's collection, Hackensack, N.J., U.S.A. It is not often possible to have the two parents of this hybrid in flower at the same time, for under normal circumstances one is a spring and the other an autumn-flowering species. Like many hybrids of *C. aurea* this is a rampant grower, the flower spike being of useful length, and borne in an erect style. The strong influence of *C. Lawrenceana* can be noticed in the form and colour of the labellum, and there is a beautiful crimson-purple flushing of colour over the golden-yellow sepals and petals. Mr. Moore justly considers this to be one of his best hybrids, and he has a large selection from which to choose.

Lælio-Cattleya highburiensis (*Lawrenceana* × *cinnabarina*) received an Award of Merit, Royal Horticultural Society, April 7th, 1896, when exhibited by Mr. Joseph Chamberlain.

L.-C. Minerva (*Perrinii* × *Lawrenceana*) was flowered by Mr. C. Ingram, November, 1896.

L.-C. Hyeana (*Lawrenceana* × *purpurata*) is a very popular hybrid first shown by Mons. Jules Hye, at Brussels, May 9th, 1897.

L.-C. Ruby Gem (*Lawrenceana* × *L.-C. elegans*) also came from Mr. Ingram's collection. The date of its flowering was August, 1897.

L.-C. Baden-Powell (*Lawrenceana* × *tenebrosa*) was exhibited by Mons. Jules Hye, Temple Show, May, 1900.

L.-C. Ida (*harpophylla* × *Lawrenceana*) flowered in Mr. Chamberlain's collection at Highbury, 1902.



Cattleya A. Dimmock (aurea × Lawrenceana).
A specimen plant in the collection of Clement Moore, Esq., Hackensack, N.J., U.S.A.

L.-C. Hilda (Lawrenceana × Boothiana) also flowered in the Highbury collection, May, 1903.

L.-C. Lawrie (Lawrenceana × L.-C. warnhamiensis) was raised by Mr. C. J. Lucas, and flowered with him, April, 1907.

L.-C. gattoniensis (Lawrenceana × L.-C. Schilleriana) appeared in the year 1907, in the collection of Sir Jeremiah Colman, Bart.

L.-C. Peetersii (Lawrenceana × L.-C. callistoglossa) flowered in 1907, in the establishment of Messrs. Peeters and Son, Brussels.

L.-C. rigida (Lawrenceana × superbians) was raised by Messrs. Sander and Sons, and described in the ORCHID WORLD, May, 1912, p. 177.

Sophro-Cattleya Atreus (Lawrenceana × grandiflora) first flowered with Messrs. Veitch and Sons, October, 1904.

Sophrocattlælia Phyllis (Lawrenceana × S.-L. laeta) was exhibited by Lieut.-Col. Sir George Holford, at the Royal Horticultural Society, September 3rd, 1907, when it received an Award of Merit.

Brasso-Cattleya Peetersii (glaucæ × Lawrenceana) flowered with Messrs. Peeters and Sons, Brussels, February, 1905.

B.-C. Ena (Lawrenceana × Digbyana) first flowered with Mons. Maron, Brunoy, in 1906, although the name Ena did not appear until Messrs. Veitch exhibited this hybrid, September 3rd, 1907.

B.-C. Mary (nodosa × Lawrenceana) was raised and flowered in the collection of Sir Jeremiah Colman, Bart., and when exhibited at the Royal Horticultural Society, July 9th, 1907, it obtained an Award of Merit.



Cattleya Gaskelliana alba, flowering in The West Hill Collection, Hessle, East Yorks.

CATTLEYA GASKELLIANA.

THIS most useful Cattleya, introduced by Messrs. Sander, of St. Albans, was at first regarded with some misgiving, but when the plants became established and produced flowers from strong and healthy bulbs it was found to be a most useful and

beautiful addition to the labiata group. It is dedicated to Mr. Holbrook Gaskell, of Woolton, Liverpool, who at the time of its introduction was an assiduous cultivator of Orchids, and the possessor of one of the finest collections in the North of England.

Like most forms of *Cattleya labiata* the flowers of *C. Gaskelliana* vary considerably in colour, that of the sepals and petals ranging from amethyst-purple of a medium shade to pure white, whilst for general effect it is as varied as *C. Mossiæ* or *C. Trianæ*. It is a plant of easy culture, and can be relied upon to produce flowers during the month of August, a time when *Cattleya* flowers are usually most acceptable.

The accompanying photograph shows *C. Gaskelliana alba* flowering in the collection of W. P. Burkinshaw, Esq., The West Hill, Hessle, E. Yorks. The group contains thirteen plants with forty-six flowers.

The method adopted for their cultivation is practically the same as that for the whole collection of *Cattleyas*, which are extensively grown at this place. Directly after the plants have finished flowering a dry condition of the compost is maintained until new roots are seen to be pushing, when all plants that require re-potting or re-panning are attended to. The compost consists of two parts osmunda and peat fibre, and one part each of

A.1 fibre and sphagnum moss. The fibres are thoroughly cleaned by taking away the earthy particles. The plants, after re-potting, are kept on the dry side, only sufficient water being given to keep the compost fresh and the bulbs from shrivelling.

This species is grown at the warm end of the *Cattleya* house in company with *C. gigas*, and others that require rather more heat. Firm potting is essential, for the compost will then remain in a fresh condition for a considerable period, and *Cattleyas* make more roots in a firm compost than in a loose one. The plants, when in full growth, require an abundance of water both at the roots and in the atmosphere, but when at rest this is very considerably reduced.

At the present time there are several varieties of *C. Gaskelliana alba*; amongst the best are *alba magnifica*, *alba R. Ashworth*, and *alba Queen Alexandra*. The original *alba* variety was shown by Mr. de Barri Crawshay at the Royal Horticultural Society, July 8th, 1884, when it received a First-class Certificate.

J. T. B.

CALENDAR OF OPERATIONS FOR OCTOBER.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

ONE of the most important matters during this month is the management of the temperatures and the atmosphere in the houses, especially at night time. Sharp frosts frequently make their appearance at this season, and the grower should be on the alert to prevent any great fluctuations in the temperatures, so that no evil effects may overtake his plants from this source. It is generally during the early hours of the morning that these October frosts occur, and on such occasions the temperatures of the various houses are sure to fall a few degrees lower than they should do, but no harm will occur provided no watering or damping down is attempted until the proper degree of heat is attained. A hot, dry atmosphere must be avoided as well as a cold, damp one, and these two extremes must be strictly guarded against.

Considering the exceptionally dull sunless season we have passed through, the safest course will be to keep a little extra fire heat in the pipes at night time, thereby preventing the temperatures from falling too low by the morning. The young growths of many autumn growing Orchids are frequently injured through insufficient heat. Another advantage to be derived from this extra fire heat is that more pure air can be admitted. It is difficult to forecast fluctuations of temperature, but many difficulties may be overcome by careful observation of the outside elements.

During this and next month the temperatures of the various houses should be kept as near to the under-mentioned figures as circumstances will permit.

East Indian House ... day, 70; night, 65

Cattleya and Mexican House, day, 65; night, 60
 Intermediate House " 60; " 58
 Cool House " 55; " 50

In the event of extremely cold weather a degree or two lower will do no harm, but this condition should not be allowed to remain for any length of time.

All shading may now be removed, and if the plants have been inured to the light, as advised, they will withstand the sun and thereby receive considerable benefit.

Atmospheric moisture. At this season of the year damping down must be done with discretion, for there is always the danger of the moisture condensing on the glass and causing drip, especially if there is no outlet. These drips often cause the loss of young growths, and, very often, the total loss of a valuable plant.

Ventilation. Air should be admitted in every department on all favourable occasions, but draughts must be avoided, for with them come chills and injury to the plants.

Watering. The remarks made last month respecting this matter still hold good, in fact, right through the winter months. Always consider whether it is advisable to water plants or not, bearing in mind that it is much easier at this season to get the compost wet than it is to get it dry again. In no particular detail of our practice is there more scope for intelligence than in the application of water to the plants. The careful observer in this matter will always make the best cultivator.

Dendrobiums. Continue to look over and remove those that have finished their growth to the resting-house, taking care that only sufficient water is given to prevent them shrivelling. Plants of the evergreen section, including *D. thrysiflorum*, *D. densiflorum*, *D. Bronckartii* and *D. Farmeri*, that have finished their growth, may also be removed to a cooler and more airy atmosphere, but they must not be kept quite so dry at the roots as those of the *D. nobile* section.

Thunias. Owing to the lack of sunshine the leaves of these plants are still quite green, although the plants have been in the resting-house for some time. While the foliage remains so, water must still be supplied to the

roots, but only in sufficient quantities to keep the pseudo-bulbs plump. Keep the leaves free from red spider by syringing them with rather warm soapy water, or a weak solution of insecticide.

Calanthes of the *vestita* section that are now pushing up their flower spikes will commence, at the same time, to cast their foliage. These plants must be watered moderately until the blooming period, and have all the light possible to enable them to expand and develop their flowers. They should still be kept in the same house and temperature as that in which they made their growths. The later flowering varieties, such as *C. Regnieri*, *C. Turneri*, and others, are also later in making their growth and losing their foliage, therefore the treatment must be varied accordingly.

Cymbidiums which have finished growing and are pushing up their flower spikes will be benefited by an occasional watering with weak liquid manure, but in no case must it be given in strong doses; rather withhold it altogether than do the plants an injury.

Sobralias that are in need of new rooting material may be re-potted at this season, and being strong growers will require more pot room. A compost which they will succeed in is equal parts fibrous loam, osmunda, peat, and sphagnum moss, all thoroughly mixed together and used in a rough state. Pot rather firmly and leave a space of half an inch or so below the rim of the pot for watering. After re-potting, the soil must be kept on the dry side, and very little water will be required until the new roots enter the compost. *Sobralias* will succeed in an Intermediate house where they can be accommodated with plenty of head room.

Odontoglossums. The potting of these plants may be continued, as advised last month, but the work should be concluded as soon as possible. Any that are not in the desired condition will be best left over until the early spring. Plants that are pushing up their flower spikes should be elevated close to the glass, so that they obtain all the light possible. Any sickly or weak plants attempting to flower should have the spikes

removed at once. It is much more desirable to allow the plants to attain a robust and healthy state before flowering than to permit them to produce spikes from poor, puny flowers. It should be the aim of every cultivator to produce flowers in their best form.

Disas. We have now reached the season of the year when that most lovely Orchid, *Disa grandiflora*, may be re-potted. The pots should be well drained, using a compost of equal portions of fibrous peat and sphagnum moss, with a fair sprinkling of half-decayed oak leaves and coarse silver sand, or, better still, powdered sandstone or crocks, all mixed well together. The plants should be potted moderately firm, but care must also be taken that the compost is not placed too firmly in the pots. After re-potting, give just sufficient water to settle the compost, and then, for some time, spray once or twice a day, according to the weather. This treatment will suffice to keep them sufficiently moist.* *Disas* require a cool, moist position in a freely ventilated house, where frost can be kept away. When the weather is cold much less moisture must be given them, and air should be admitted whenever practicable. Their greatest enemies are thrip and greenfly, and these must at all costs be kept in subjection.

Miltonia Roezlii, its variety *alba*, and any other late flowering varieties which are commencing to grow and require new rooting material, should have attention as soon as the new growths push forth fresh roots. The compost as previously advised for *M. vexillaria* should be used, and the plants should be thoroughly cleaned and placed well up to the light in the warm end of the Intermediate house. Although *Miltonias* delight in a fairly moist position, water, during the winter time, should only be applied to the compost when it becomes dry.

Mormodes, *Cycnoches*, and *Catasetums*, as they finish their growths, may be placed with the *Dendrobiums* in the resting-house, and receive only sufficient water to prevent shrivelling. A long dry rest is very beneficial to these plants.

Anguloas that have been growing in the Cool house during the summer months should

now be taken back to the cool end of the Intermediate house. As soon as their growth is completed they may be kept on the dry side until they start again in the spring time.

Cattleyas, *Lælia*, and *Lælio-Cattleyas* may still be re-potted, providing they are pushing new roots. This is considered one of the best seasons of the year to re-pot *C. Warscewiczii*, or *gigas*, keeping the plants on the dry side until they commence to grow in February. A place well up to the light at the warmest end of the *Cattleya* house will be found suitable. I do not hesitate to re-pot any *Cattleya* at any season of the year, for I maintain that it is much better in new and sweet material than deteriorating in a sour and decayed compost. One of the greatest aids to successful culture is to keep the plants in a sweet and healthy compost.

Vandas. The end of the present month is the best time to overhaul all plants of *V. tricolor* and *V. suavis*, especially if any disturbance of the roots is necessary, for there is now less likelihood of the foliage suffering than at any other season. These plants do not appreciate strong sunlight at any time, and now that the sun is daily losing power and the external atmosphere is cool and moist a suitable place will be found for them at the warmest end of the Intermediate house. A cool, shady position is of great assistance towards the re-establishment of the plants without the loss of foliage. If the operation is left until the spring the stems are liable to become bare and unsightly through loss of leaves. The plants that mostly require re-potting will be those that have lost their lower leaves and have become unsightly. In removing the old compost great care should be taken not to injure the roots, for on account of their brittleness they are very susceptible to injury. If the base of the old stem cannot be cut off so as to bring the lower leaves down to the level of the top of the pot, then the stem should be placed down in the pot and the crocks placed around it for quite two-thirds of the pot's depth. Cleanliness is one of the greatest aids to good cultivation. Over the crocks place a layer of sphagnum moss, over which carefully

spread the roots and continue to work in cleaned moss and broken crocks up to the base of the lower leaves. The material should be pressed firmly around the plant, for if placed too loosely the moss fails to grow and the plant has an unsightly appearance and rarely thrives satisfactorily. Each plant should be securely fastened to neat stakes of lasting quality, and care should be taken when tying the plant not to injure the leaves.

General Remarks. We must now make every effort to safely place our plants in their winter quarters, and where space is limited this will take time and need some little forethought, therefore, the sooner it is taken in hand the better. Each plant should be placed in such a position that it will receive the maximum amount of light and everything in keeping with its various requirements.

THE TREATMENT OF OLD PLANTS.

OLD specimen plants frequently give considerable trouble, and rarely produce sufficient flower to reward the cultivator. The only satisfactory method is to cut away all the old bulbs, leaving but two or three to support the new growth, and to repot each healthy piece either singly or several in a large pot. Messrs. Stuart Low and Co. have recently carried out this principle at their Bush Hill Park nurseries with great success. Many excellent varieties of *Cattleya Mendelii* had become unmanageable and the recently made bulbs were not so large as might be wished. These plants, many of which had been in cultivation for a number of years, were carefully divided and the various pieces separately potted. The result is eminently satisfactory, the new bulbs being of a healthy condition and showing every sign of producing still larger ones during the following season. In a short time these newly-made plants give far finer results than many of the old and worn out specimens. One of the secrets of successful cultivation is to keep all the stock young and full of vigour

THE MOSCOW ORCHID SHOW.

THE Society of Horticulture and Aquarium Amateurs recently organised, for the first time in Moscow, a special autumn Orchid Show. Dr. Jean Troyanovsky, a well-known amateur and the possessor of one of the finest collections of Orchids in Russia, undertook the principal arrangements, and much is due to him for the great interest and assistance which he gave. Others who rendered considerable help were Mr. Voronine, Mr. Langovoy, Mr. Varjensky, and many local amateurs.

Messrs. Charlesworth and Co. staged a very fine group to which the Imperial Society of Acclimatization of Plants and Animals awarded the First Prize, a Large Gold Medal. The group contained many superb *Cypripediums*, *Odontiodas*, *Oncidiodas*, *Odontonias*, and *Odontoglossums*, the latter including a very beautiful variety of *Jasper*.

Messrs. Pauwels and Co. staged a large and elegant group to which a Gold Medal was awarded by the Society of Horticulture and Aquarium Amateurs. This exhibit contained many excellent *Cattleyas*, *Laelio-Cattleyas*, good plants of *Dendrobium superbiens*, and a large specimen *Cypripedium Lord Derby*.

Mr. Otto Beyrodt sent a very extensive group of various Orchids, the finest plant being *Cattleya Gaskelliana alba* variety *Princess Mary Mestchersky*, a pure white form having a small pink spot of colour in the centre of the labellum. A large plant of *Dendrobium Goldei* was also shown. A Gold Medal was awarded by the Society of Horticulture and Aquarium Amateurs.

Mr. W. Hennis showed many excellent examples from his importations, and received a Large Silver Medal from the Society of Acclimatization of Plants and Animals.

The President of the Orchid section conveyed all the plants to Moscow at the expense of the exhibition committee, and those who were unable to participate in the good results have much to regret, for the interesting exhibition was a great success in every way.



Dendrobium Schützei, from the Philippine Islands. Received First-class Certificate, Royal Horticultural Society, September 10th, 1912, when exhibited by Messrs. Sander & Sons, St. Albans.

CATTLEYA BICOLOR.

DR. LINDLEY was the original describer of this Brazilian species. In 1836 it was figured in the *Botanical Register*, and in 1837 some plants were received by Messrs. Loddiges, of Hackney, in whose collection they flowered the following year. This species is found growing on the branches and trunks of large trees in the province of Minas Geraes, and more especially on the mountains near Rio de Janeiro. The specific name is derived from the fact that the flower has two principal colours: the bronze-yellow sepals and petals, and the bright amethyst-purple labellum.

Cattleya bicolor belongs to the long-bulbed section of *Cattleya* which includes such well-known species as *intermedia*, *Harrisoniana*, *superba*, *guttata*, and *granulosa*. In the early days of hybridisation much was expected from this section of the *Cattleya* genus, the comparatively free-flowering nature and rapidity of growth making the plants favourite subjects for carrying seed-pods. Taken on the whole, the section has given disappointment, the chief cause being the poor shape, or starry nature of the flowers, and the dominating influence which they have over those of the shorter-bulbed species.

The subject of this note, *Cattleya bicolor*, has, however, proved itself of immense value in a few prominent instances. In *Cattleya Iris*, a hybrid between *Cattleya bicolor* and *Cattleya aurea*, and almost too well known to need further comment, a beautiful result has been obtained, yet much as this plant is appreciated, there is, in the opinion of many, a still finer flower to be seen in *Cattleya Venus*, this the result of crossing *Cattleya Iris* with *Cattleya aurea*, one of its parents. The stiff, erect petals of *Cattleya bicolor* impart an improvement to those of *Cattleya aurea*, which in every case have a tendency to hang down or fall away from the dorsal sepal.

Around the apex of the amethyst-purple labellum of *Cattleya bicolor* is a narrow white margin, the width of which varies in different plants, hybridisers classing them as bad

varieties when a large amount of white is shown and good forms when the margin is almost eliminated by the purple pigment extending to the extreme edge. It is rarely that one finds a variety without some slight margin of white. *Cattleya aurea* possesses a labellum richly marked with crimson-purple at its apex; this excessive amount of pigment, when the species is used as a parent, effectually prevents the white margin of *Cattleya bicolor* from being visible in the resulting hybrid.

Another elegant hybrid is *Cattleya Adula*, obtained by crossing *Cattleya bicolor* with *Cattleya Hardyana*, the latter parent a natural as well as an artificial hybrid between *Cattleya aurea* and *Cattleya Warscewiczii* (gigas). The colour of the sepals and petals is more inclined to be a purple-bronze, due to the strong influence of *Cattleya Warscewiczii*, and a somewhat larger flower is frequently produced. This hybrid has a more robust constitution than *Cattleya Iris*, and on that account is more often grown by amateurs.

The apex of the lip of *Cattleya Warscewiczii* is somewhat similarly coloured to that of *Cattleya bicolor*, or, in other words, the purple pigment does not often extend to the extreme edge, but leaves a more or less varying white margin which is frequently divided in the centre by a larger area of white. This fact will account for the greater difficulty experienced in obtaining a variety of *Cattleya Adula* with a lip completely saturated with crimson, or amethyst-purple pigment, than an equally good variety of *Cattleya Iris*.

Cattleya Clarkiæ, the result of crossing *Cattleya bicolor* with *Cattleya labiata*, is an autumn-flowering hybrid of considerable utility. The flowers are of bright purple-bronze colour, and of sufficiently thick substance to ensure freshness for three or four weeks.

Altogether, *Cattleya bicolor* has taken part in the formation of some thirty different hybrids, but few, if any, equal in beauty or merit those mentioned in this note. Further success will be somewhat slow.



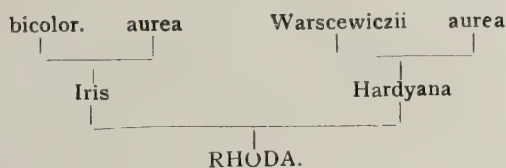
CATTLEYA RHODA ILLUMINATA

(C. Iris $\times$ C. Hardyana).

F.C.C. R.H.S. August 15, 1911.

CATTLEYA RHODA.

(See Coloured Plate.)



CATTLEYA RHODA is composed of three species, viz., *bicolor*, *aurea*, and *Warscewiczii* (*gigas*), all of which are more or less represented in the variety *illuminata*, the subject of the adjoining coloured plate. *Cattleya bicolor* is responsible for the bronzy tint of the sepals and petals, and the stiff, erect nature of the latter

segments. *C. aurea* gives to the whole flower the beautiful underlying golden-yellow hue, and the bright crimson margin to the labellum; while *C. Warscewiczii* imparts the rose flushing to the whole flower, the rich crimson-purple margin to the labellum, and is also responsible for the well-defined bright yellow discs on the side lobes of this latter organ. The parentage of *C. Rhoda* is easily produced, but the flowers of the resulting seedlings greatly vary, many being quite inferior and unworthy of further cultivation. Messrs. Charlesworth and Co. first flowered this elegant hybrid, and the two finest varieties, *illuminata* and *Fairlawn* variety, are both in the rich collection of H. S. Goodson, Esq., *Fairlawn*, Putney.

ROYAL HORTICULTURAL SOCIETY.

September 10th, 1912.

MEMBERS of the Orchid Committee present: J. Gurney Fowler, Esq. (in the chair); Messrs. Jas. O'Brien (hon. sec.), R. Brooman-White, W. Bolton, W. H. White, A. Dye, J. E. Shill, J. Cypher, W. H. Hatcher, W. P. Bound, W. Cobb, J. Charlesworth, A. McBean, F. J. Hanbury, W. Thompson, Stuart Low, Gurney Wilson, and Sir Harry J. Veitch.

H. T. Pitt, Esq., Rosslyn, Stamford Hill, received a Silver Flora Medal for a good group of various *Lælio-Cattleyas* and other Orchids. Mention must be made of *Cattleya Gertrude* Pitt, *Lælio-Cattleya rubiginosa* (see "New Plants"), various *Odontoglossum* hybrids, and *Od. crispum* "King of Britain," a handsomely blotched form.

E. H. Davidson, Esq., Borlases, Twyford, staged some very attractive plants, including *Odontoglossum Aurora* with an erect spike of nine flowers, *Lælio-Cattleya Neleus* (*C. Iris* × *L.-C. Ophir*), a bright yellow flower with crimson lip, and *Odontoglossum crispum* *Louis*, a very handsome variety.

H. S. Goodson, Esq., *Fairlawn*, Putney (gr. Mr. G. E. Day), staged some interesting and beautiful specimens, the best including *Cattleya Rhoda* "Fairlawn variety" which secured a First-class Certificate, August 30th,

1910; *Lælio-Cattleya Elva* var. *St. Vincent*, *Cattleya Atalanta illuminata*, with large flowers, and a new hybrid.

His Grace the Duke of Marlborough, *Blenheim Palace*, Woodstock, exhibited *Vanda cœrulea Blenheimensis*, an elegant variety with deep violet-blue flowers, *Lælio-Cattleya eximia* "Blenheim variety," and a new *Cypripedium* hybrid between *Standard* and *Fairrieianum*.

Francis Wellesley, Esq., Westfield, Woking, sent *Lælio-Cattleya* Mrs. Donald MacMaster (see "New Plants").

Messrs. Sander and Sons exhibited a selection of very elegant Orchids, including a specimen *Vanda cœrulea* which received a Cultural Commendation, a good plant of *Arachnanthe Lowii* with three long spikes of flowers, the rare *Cœlogyne Micholitzii*, and several new and interesting hybrids.

Messrs. Charlesworth and Co., Haywards Heath, exhibited a good specimen of *Maxillaria nigrescens* with numerous crimson-brown flowers, the scarlet flowering *Lælia monophylla*, and a well grown specimen of *Dendrobium Dearei*.

Messrs. Stuart Low and Co., Bush Hill Park, exhibited the elegant *Brasso-Cattleya* Mrs. J. Leemann, *Stanhopea graveolens* with seven flower spikes, the pretty *Odontoglossum*

Uro-Skinneri album, Cirrhopetalum appendiculatum, and various other interesting species.

Messrs. J. and A. McBean, Cooksbridge, Sussex, showed *Cattleya Thurgoodiana* "Model," a very large flower of excellent shape, and one of the finest varieties yet seen of this hybrid. *Cattleya Adula excelsa*, a beautiful form, was also exhibited.

Mr. Sidney Flory, Tracy's Nursery, Twickenham, staged the elegant *Pescatorea Klabochozum*, with claret lip and tips to the segments; *Zygopetalum maxillare* Gautieri, the rare *Dendrobium McCarthiæ*, and various others.

Mr. E. V. Low, Vale Bridge, Haywards Heath, Sussex, exhibited *Odontoglossum crispum xanthotes* var. *Walkeria*, of fine shape with yellow spotting on the sepals.

AWARDS.

FIRST-CLASS CERTIFICATES.

Dendrobium Schützei, from Messrs. Sander and Sons.—A very beautiful new species from the interior of Luzon, Philippine Islands, where it was discovered by Mr. Schütze. The stout pseudo-bulbs are nine to twelve inches in height and carry four to five flowers on a spike, pure white, with a small emerald-green disc on the upper part of the lip. In form and shape they somewhat resemble those of *D. formosum giganteum*.

Lælio-Cattleya Memoria H. A. Tracy (L.-C. *Canhamiana* × *C. Hardyana*), from H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. G. E. Day).—A grand hybrid; for description see "New Plants."

AWARDS OF MERIT.

Odontioda Devossiana "Fowler's variety" (*O. Edwardii* × *C. Noëzliana*), from J. Gurney Fowler, Esq., Glebelands, South Woodford.—An attractive hybrid with a branching spike of numerous dark red flowers, with yellow discs to the labellum.

Lælio-Cattleya St. Gothard "Glebe variety" (L.-C. *Gottoiana* × *C. Hardyana*), from C. J. Phillips, Esq., The Glebe, Sevenoaks.—A very large flowered hybrid of rosy-purple colour, the labellum being particularly well coloured with deep ruby-red.

CULTURAL COMMENDATION

To Messrs. Sander and Sons, St. Albans, for a grand specimen of *Vanda coerulea*, more than four feet in height and bearing 74 leaves and two fine spikes, one with 19 and the other with 10 large blue flowers.

September 24th, 1912.

MEMBERS of the Orchid Committee present :

J. Gurney Fowler, Esq. (in the chair), and Messrs. James O'Brien (hon. sec.), Gurney Wilson, J. Wilson Potter, R. A. Rolfe, R. G. Thwaites, F. Sander, F. J. Hanbury, C. H. Curtis, T. Armstrong, A. McBean, W. Cobb, J. Charlesworth, W. H. Hatcher, A. Dye, J. Shill, W. H. White, W. Bolton, R. Brooman-White, de B. Crawshay, J. S. Moss, C. J. Lucas, and Sir Harry J. Veitch.

Lady Wernher, Luton Hoo, Luton (gr. Mr. Metcalf), received a Silver-gilt Medal for a well-arranged group of *Vanda coerulea* and *Dendrobium formosum*. The *Vandas* were exceedingly well grown and gained a Cultural Commendation. Good varieties of *Cattleya Adula* and *Lælio-Cattleya blechleyensis* were also staged.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill), showed *Cypripedium* W. R. Lee, a grand specimen with 40 flowers, and which received Cultural Commendation.

E. H. Davidson, Esq., Borlases, Twyford, exhibited many choice varieties of *Cattleya aurea*; *C. Adula*, Davidson's variety; *Lælio-Cattleya Golden Oriole*, Borlases variety, a very distinct form; and *Sophro-Cattleya Dora* (*aurea* × *S.-C. Cleopatra*), a scarlet-red flower, with crimson lip.

C. J. Phillips, Esq., The Glebe, Sevenoaks, showed *Cattleya Fabia*, an excellent variety with stiff, upright petals of bright crimson-purple colour.

Fred. J. Hanbury, Esq., Brockhurst, East Grinstead, showed *Cypripedium Winifred* Hollington, Brockhurst variety (*callosum* *Sanderæ* × *niveum*), a pretty hybrid, but showing reversion to the typical coloured form.

Messrs. Hassall and Co., Southgate, were awarded a Silver Flora Medal for a good group of autumn-flowering hybrids, including

Cattleya Nestor, of good form, C. Thurgoodiana, C. Minucia, the elegant bright orange coloured C. iridescens, and choice examples of C. labiata.

Messrs. Stuart Low and Co., Bush Hill Park, Enfield, obtained a Silver Flora Medal for an attractive group. Special plants included *Odontoglossum Uro-Skinnei* album; *Cattleya Hardyana*, a very grand variety with broad and richly coloured labellum; *Lælia Dayana delicata*, a very pretty form with prominent purple coloured ridges on the labellum; and well-flowered plants of *Houlletia Brocklehurstiana*.

Messrs. J. and A. McBean, Cooksbridge, Sussex, exhibited many choice specimens, of which mention must be made of *Cattleya Venus*, of very rich colour; *Brasso-Cattleya Thorntonii*; *Dendrobium Dearei*, with many flowers; and excellent varieties of *Odontoglossum crispum*.

Messrs. Charlesworth and Co., Haywards Heath, showed *Trichopilia nobilis alba*, the interesting *Cynoches maculatum* and C. Egertonianum, *Cattleya Rhoda*, of very rich colour, C. Hybla, of excellent shape, and the curious *Eria longispicata*.

Messrs. Sander and Sons, St. Albans, exhibited *Cattleya nobilis* (Warneri $\times$ Schofieldiana), a large flower of rosy-flesh colour, lip and side lobes rich purple.

Francis Wellesley, Esq., Westfield, Woking, staged *Lælio-Cattleya Mrs. Phayre magnifica* (aurea $\times$ L.-C. Norba), of good shape, sepals and petals bright golden-yellow, lip rich crimson.

Mr. S. Flory, Tracy's Nursery, Twickenham, showed *Cypripedium Faire-Maude*, a very good variety of Cyp. beechense, and a choice form of *Odontoglossum crispum*.

Mr. Harry Dixon, Spencer Park Nursery, Wandsworth Common, exhibited *Miltonia Regnellii citrina*, an orange-yellow form with faint rose colour on the labellum.

AWARDS.

FIRST-CLASS CERTIFICATE.

Odontoglossum Woodroffeæ (Rossii rubescens $\times$ Queen Alexandra), from Eric H. Davidson, Esq., Borlases, Twyford. — A

wonderful result, and the finest of the Rossii hybrids. The spike carried two flowers, of medium size, but with the labellum much larger than usually seen. Sepals and petals almost covered with rich crimson-brown blotches, with bright yellow under-colour appearing in a few places; apices of petals crimson-brown. The very large oblong labellum of rich violet-purple, having but one small spot of dark pigment, and a bright yellow crest. *Odontoglossum Queen Alexandra* is a hybrid between *Harryanum* and *triumphans*, but none of the well-defined blotch on the labellum of the latter species has been transmitted to *Woodroffeæ*. Raised by Messrs. Charlesworth and Co., this, the only seedling, has taken eight years to flower.

AWARDS OF MERIT.

Odontoglossum Neptune (crispum $\times$ nebulosum), from Mons. H. Graire, St. Fuscien, France.—A very singular hybrid, and the first instance to be recorded of the uniting of these two species. Flowers large, much resembling *nebulosum* in habit and markings; the labellum well developed and blotched with red.

Odontioda Margarita (Od. madrense $\times$ C. Noëziana), from Mons. H. Graire.—A very pretty rose coloured flower with well defined scarlet blotches on the inner part of the sepals and petals. Lip broad at the apex, and with a bright yellow crest.

Lælio-Cattleya Phoenix var. *Hastediana* (L.-C. Henry Greenwood $\times$ aurea), from C. J. Phillips, Esq., The Glebe, Sevenoaks.—A very pleasing hybrid and an improvement on the original plant exhibited by Messrs. Sander and Sons, September 14th, 1909. Sepals and petals rich crimson-purple, the latter projecting forward. The large and attractive labellum of still darker colour, prettily crimped at the margin, and with gold veining.

Cattleya Lord Rothschild var. *albescens* (Gaskelliana $\times$ aurea), from Messrs. J. and A. McBean, Cooksbridge.—A well-formed flower of light blush tint, the broad, open labellum golden-yellow.

Zygopetalum Sanderianum, from Sir Trevor Lawrence, Bart., Burford.—A well-grown example of this elegant species.

MANCHESTER ORCHID SOCIETY.

August 22nd, 1912.

MEMBERS of the Committee present: Rev. J. Crombleholme (in the chair), Messrs. J. C. Cowan, J. Evans, W. Hatcher, W. Holmes, J. Lupton, D. McLeod, Z. A. Ward, A. Warburton, and H. Arthur (Secretary).

Z. A. Ward, Esq., Northenden, was awarded a Silver Medal for a nice group of *Cattleyas* of the Iris section.

Rev. J. Crombleholme, Clayton-le-Moors, received a Silver Medal for a good group of *Cypripediums*.

J. McCartney, Esq., Bolton, staged a group composed principally of *Cattleyas* and hybrids.

Eric F. Davidson, Esq., Twyford, Berks., staged a good group to which a Silver Medal was awarded.

Col. J. Rutherford, M.P., Blackburn, was awarded a Bronze Medal for a good group of various Orchids.

Messrs. Charlesworth and Co., Haywards Heath, received a Silver Medal for some excellent species and hybrids.

Messrs. A. J. Keeling and Sons, Bradford, obtained a Silver Medal for a mixed group of Orchids.

Messrs. Sander and Sons, St. Albans, exhibited excellent *Cypripediums* and hybrid *Cattleyas*.

AWARDS.

FIRST-CLASS CERTIFICATE.

Cattleya Ashtonii (Harrisoniana × Warscewiczii), from Z. A. Ward, Esq.

AWARDS OF MERIT.

Cypripedium leyburnense magnificum, and *Cyp. Frau Ida Brandt*, from the Rev. J. Crombleholme.

Cattleya Iris var. "Rubra," *Od. Empress Eugenie*, *Odontioda Thwaitesii* "Davidson's var." and *Odontioda Schröderi* "Davidson's var.," from Eric F. Davidson, Esq.

Cypripedium Hassallii (bingleyense × Charlesworthii), from Messrs. Hassall and Co.

September 5th, 1912.

MEMBERS of the Committee present: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, J. Bamber, J. C. Cowan, J. Evans, W. Hatcher, W. Holmes, A. J. Keeling, J. Lupton, D. McLeod, W. Morgan, C. Parker, H. Thorp, Z. A. Ward, A. Warburton, and H. Arthur (Secretary).

Z. A. Ward, Esq., Northenden, was awarded a Silver-gilt Medal for an excellent group of well-grown plants of *Cattleya Iris*, several carrying six and seven flowers on a spike.

R. Ashworth, Esq., Newchurch, received a Silver-gilt Medal for an excellent group of *Odontoglossum* hybrids, *Cattleyas* and their hybrids, and good *Cypripediums*.

J. McCartney, Esq., Bolton, was awarded a Large Silver Medal for a group of *Cattleyas* and attractive spotted *Odontoglossum* hybrids.

Col. J. Rutherford, M.P., Blackburn, received a Silver Medal for a small group of *Cattleyas* and *Odontoglossums*.

Rev. J. Crombleholme, Clayton-le-Moors, obtained a Silver Medal for a nice group of various *Cypripediums*.

Mr. E. F. Davidson, Twyford, Berks., was awarded a Large Silver Medal for some excellent *Cattleya* hybrids, several of which obtained awards.

Mr. J. Evans, Congleton, received a Silver Medal for a selection of interesting hybrid Orchids.

The Liverpool Orchid Co. were awarded a Silver Medal for a neat exhibit of various *Cypripediums* and other hybrids.

Messrs. Stuart Low and Co. obtained a Silver Medal for rare species and hybrids.

Messrs. A. J. Keeling and Sons, Bradford, exhibited various hybrids, many of excellent form.

Mr. W. Shackleton, Great Horton, showed a few choice Orchids.

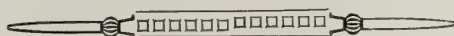
A First-class Certificate and two Awards of Merit were given to Mr. Z. A. Ward, an Award of Merit to Mr. R. Ashworth, and six Awards of Merit to Mr. Eric F. Davidson.

Vol. 3.

THE ORCHID WORLD.

No. 2.

NOVEMBER, 1912.



NOTES.

NEW YORK SHOW, 1913.—Under the auspices of the Society of American Florists and Ornamental Horticulturists, the Third International Flower Show will be held in the New Grand Central Palace, Lexington Avenue, New York City, April 5th to 12th, 1913. A special section is reserved for Orchids, and in addition to the usual Certificates of Merit and Culture, six cash prizes, amounting in value to £50, will be awarded.



ST. PETERSBURG EXHIBITION, 1913.—Under the high patronage of His Majesty the Emperor of Russia, and on the occasion of the 300th anniversary of the accession to the throne of the Romanoff dynasty, the Imperial Horticultural Society of Russia will hold an International Horticultural Exhibition at St. Petersburg at the end of April, 1913. The Awards for Orchids include 14 Gold and 10 Silver Medals.



"ORCHIDS FOR AMATEURS."—The fourth edition of this useful amateur's guide has recently been issued by Messrs. Mansell and Hatcher. The aim of this booklet is to assist amateurs in their various every day requirements regarding Orchid cultivation. Useful notes are given on temperatures, ventilation, and watering, etc., as well as paragraphs on potting composts and plant pests. Detailed

descriptions of about 180 species and varieties are included, together with their flowering season and advice as to the house in which they may be best cultivated. This helpful guide, containing 15 excellent photographic illustrations, may be obtained gratis from the authors.



CATASETUM CHRISTYANUM.—The *Catasetum* genus can scarcely be regarded as a favourite with Orchid amateurs, yet a few of the species are certainly worthy of cultivation. From the extensive collection of Pantia Ralli, Esq., Ashted Park, Surrey, comes an elegant 13 flowered spike of *C. Christyanum*. It belongs to the *Myanthus* section, in which the labellum of the male flower is underneath the column. The sepals and petals are dull chocolate-brown, the lip and column various shades of green. The species was named in honour of Mr. Thos. Christy, of Sydenham, and when well cultivated, as it has been by Mr. Farnes at Ashted Park, encourages a further interest in the genus.



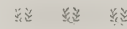
SYNANTHIC FLOWERS.—The adhesion of two or more flowers takes place in various ways, the most usual being for some of the organs to be suppressed, so that the number of existing parts is less than would be the case in two or more uncombined flowers. The

tendency in synanthic flowers is for the parts of one whorl to adhere to the corresponding organs in another flower. A very symmetrical example has appeared in the collection of F. Swanzy, Esq., The Quarry, Sevenoaks, who kindly sends us the flower. The species is *Odontoglossum grande*, and owing to its large size and handsome markings a very attractive star-like bloom has been produced. The perianth of this teratological specimen consists of ten segments; the outer whorl containing five sepals, and the inner whorl composed of three petals, one of which is in the position normally occupied by the dorsal sepal, and two labellums, both of which are in perfect condition and in no way connected. There is a lateral cohesion of two columns, the pollinia of both, however, remaining perfect. Specimens such as this are often spoken of as double flowers, but this term more properly applies to florist's flowers, as, for instance, the Rose, in which the doubling results from the stamens assuming a petaloid condition.



MILTONIA REGNELLII.—This species bears the name of Mr. Regnell, who first introduced it to Europe from Minas Geraes, Brazil. It has been frequently figured, the colour of the flowers varying from light rose to rich purple, the labellum being usually darker than the sepals and petals. A slight deviation from the normal type is discernible in the variety figured in *l'Orchidophile*, April, 1889, this form having creamy-yellow tinted sepals and petals. In the Gatton Park collection the variety *citrina* has recently been seen in perfection, and the flowers which have been kindly sent by Sir Jeremiah Colman, Bart., allow one to obtain a good conception of its distinctiveness. The broad sepals and petals are bright orange-yellow, only the labellum having any sign of the usual purple pigment, and even this is reduced to a slight rose flushing. It is only during recent years that *Miltonias* have been hybridised with *Odontoglossums*, and at present the future possibilities are not all apparent. *M. Regnellii* will not prove an easy species to deal with, but if the variety *citrina* can be fertilised with one

of the albino or xanthotic *Odontoglossums* we may be able to produce several very beautiful and interesting *Odontonias*. The chances of raising these are certainly remote, but the acquisition of a few yellow-blotched hybrids would be an ample reward for the great trouble incurred. Hybridists have already produced upwards of a dozen various crosses between *Odontoglossum* and *Miltonia*, most of them resulting from the use of *M. Warscewiczii*.



OBITUARY.—We regret to record the death, at Bogota, Colombia, of Consul Wilhelm Kalbreyer, in his 64th year. Kalbreyer gained his early experience in several important gardens, and in 1876 was engaged by Messrs. James Veitch and Sons to collect plants in West Africa, where he travelled about Old and New Calabar, Bonny, the Cameroon mountains and river. He returned to Chelsea in 1877, and his treasure resulted in the discovery of two new Orchids: *Brachycorythis Kalbreyerei*, described by Reichenbach in "Flora," 1878, p. 77, and *Pachystoma Thompsonianum*, described by the same author in the *Gardeners' Chronicle*, November 8th, 1879. Of the latter species Reichenbach remarked: "This is, perhaps, the most curious discovery made in Tropical Africa, regarded from a geographical point of view. Till now all *Pachystomas* known were of Asiatic origin, and if the existence of one might have been expected outside of Asia, one would have guessed it to occur on the northern shore of Australia. The large green, white and purple flowers with a certain *Phalænopsis* shape recommend the plant. I wished it might bear the discoverer's name, but various letters from the Royal Exotic Nursery, and one written also somewhere from the tropical regions, told me Mr. W. Kalbreyer ardently desired it might bear the name of the late Rev. George Thompson, who was unusually kindhearted in his English reception of the German traveller." Kalbreyer's health never fully recovered from the unhealthy climate experienced in his West African journey. In October, 1877, he was despatched by Messrs. Veitch to Colombia,

where he collected *Odontoglossum Pescatorei* and triumphans, returning to England in February, 1878. During the same year he again visited the *Odontoglossum* district of Colombia and brought home a large collection of plants in the early part of 1879. He, however, soon returned again to Colombia, and from Antioquia traversed the country as far as the river Atrato. During this visit he collected *Odontoglossum ramosissimum*, *O. sceptrum*, *Miltonia vexillaria*, *Cypripedium Roezii*, *Cypripedium Schlimii album*, *Cattleya aurea*, and *C. gigas*, and various *Masdevallias*. His treasures included numerous ferns, described in the "Journal of Botany," 1881, p. 202. His fifth journey was undertaken in December, 1880, on this occasion to Ocaña and Bogota, when he again sent to England various Orchids. The following year he returned for a short period to this country, but ultimately travelled once again to Colombia where he established at Bogota a garden and carried on the business of exporting Orchids. In 1899 Kalbreyer contributed to *Möller's Deutsche Gartner Zeitung* an article on Colombian Orchids, and in 1903 a description of his garden at Bogota. The same publication in its issue of October 5th, 1912, contains a portrait of Kalbreyer with an interesting article by Mr. Wilhelm Hennis, of Hildesheim, detailing his travels and adventures.



PUGILISTIC TOADS.—I always keep a number of toads in my Orchid houses for the purpose of destroying vermin. The other morning, while watching two males, I was highly amused to see them have a regular set-to fight. They went at each other in a regular scientific manner, sparring and boxing each other with their fore-paws, and butting with their heads. After a while they seemed to get tired, coolly sat down, and viewed each other with great complacency. From my earliest days I have been in the habit of watching the ways of the toad, and, never having seen them fight before, would like to know if any readers ever witnessed such a scene.—ALEX. PATERSON, M.D., *The Garden*, May 28th, 1881.

THE CULTIVATION OF AIR PLANTS.

A LETTER written by Thomas Fairbairn to the Secretary of the Horticultural Society, August 25th, 1828.

"In the summer of 1813 I flowered the Air Plant, or *Aerides odoratum*, very finely; it was one complete basket of flowers, and is in the recollection of many Gentlemen who were in the habit of going to see Sir Joseph Banks, at his library in Soho Square; the plant was kept there for some weeks.

The treatment was as follows:—I put the plant when first received into a basket with old tan and moss, and hung it up in the Pine House, where it was exposed to the summer sun and to the fire heat in winter; a tub of water was placed near it, so that I could take down and plunge the basket six or seven times a day, or as often as I passed it.

"The Air Plant that I have flowered so successfully lately at Claremont is *Renanthera coccinea*; it was brought from China by Captain Mitchel in 1824. Its treatment has been nearly the same as that described above, with some variation however, which cultivators may find an improvement:—First, some old rotten roots of fern and moss were collected, and put into the bottom of a china jar, in which the plant was placed; it was then covered nearly over with the same materials, and as roots were made they were covered with more moss; it was then suspended over the flue where the fire comes into the house, and a large water-pot with a syringe was always ready to give the plant a plentiful supply of water at every opportunity, by which means that part of the house was kept moist.

"I should add, that the young roots in winter time ought to be well covered from strong heat, or they may dry up too quickly. The east end of the house is to be preferred for suspending the baskets, boxes, or pots, in which the plants are grown; the water can then be applied to them there both in the morning and in the afternoon, and they can be kept more moist there than if they were on the west side.

"The plants may also be placed on the flues, but in all cases it is necessary to keep them damp; and care must be taken to surround them with sufficient moss to retain the moisture. My success has been such with the above treatment as to produce six spikes of flowers on a single plant."

MEXICAN LÆLIAS.

THE recent sale of the collection of Mexican Lælias formed by Mr. de Barri Crawshay, Rosefield, Sevenoaks, results in the dispersal of possibly the greatest assemblage ever formed of these beautiful plants. Since 1882 Mr. Crawshay has constantly paid the keenest attention to Lælia anceps, and their re-classified nomenclature, based upon careful observation made over a long period, was published by him in the *Gardeners' Chronicle*, December 6th, 1902, where it will be seen upon reference that many of the so-called numerous varieties of *L. anceps* were not considered by him as such, but as species equally distinct, as in the analogous case of *Cattleya labiata*.

The discovery of hundreds of Lælia Schröderæ further proves this contention and re-classification. Amateurs may question the large number of them in this collection, but there is no doubt regarding them. In 1897 a few plants were purchased that were totally different to all other "anceps," except Schröderæ and Amesiana; these, when flowering, proved to be Schröderæ. The district which produced these plants provided more, almost the whole of which were added to the collection in 1898 and 1899. Finally, in 1901, an importation of several hundreds came over, almost the whole of which were also purchased by Mr. Crawshay. Every plant that has bloomed has proved a variety of Lælia Schröderæ, the gorgeous colouring of many not being equalled in depth and intensity of the lips by the grandest hybrids yet raised.

With the object of preserving history, and for future records, the following details are of interest:—

L. anceps Chamberlainiana. The grandest anceps known, magnificent form, sepals and

petals very large and broad, lip large, of splendid proportions and deeply coloured.

L. anceps Crawshayana. This ranks next to Chamberlainiana, is a little lighter coloured, but has squarer petals and lip. When the plants are well grown the flowers are very large.

L. anceps Mrs. de B. Crawshay. The finest of the dark coloured anceps; the whole flower uniform deep rose-purple with darker velvety lip.

L. anceps Scottiana. One of the darkest forms; flowers small, but very brilliant, almost self coloured.

L. anceps, Bull's alba. The only absolutely pure white anceps, having no colour anywhere.

L. anceps alba, Worthington's variety. This is identical with Bull's alba, but was originally purchased in bloom by Mr. Worthington in Mexico, 1893, whereas Mr. Bull imported his alba in 1878.

L. Schröderæ Amesiana. This was acquired from the late Mr. Burton's collection, and is part of the original Amesiana for which 200 guineas was paid. Sepals and petals white at bases, richly tinted purple at apices, lip brilliant deep purple.

L. Schröderæ Theodora. An enormous form with deeply tinted sepals and petals and a very large velvety-purple lip. One of the finest Schröderæ.

L. Schröderæ Crawshayana. Possibly the most beautiful form known. Petals very heavily tipped with purple, lip deep velvety-purple.

L. Hollidayana waddoniensis. The plant at Mr. Crowley's sale realised 70 guineas before it was broken up. Sepals and petals pure white, lip having a few faint lines in tube; of very large size.

L. Hollidayana rosefieldiensis. A very chaste and perfect variety. Petals broad, lip having very large side lobes, the anterior lobe being tinted pink.

L. Hollidayana Theodora. The most perfectly formed Hollidayana. Petals of great width, lip oblong. A pure white variety, except the crimson-purple lines in the tube.

L. Dawsonii. One of the most beautiful white Lælias. The form is exquisite, pure white with rich rose-purple lobes to the lip.



A vigorous Dendrobium, probably undulatum, photographed in New Guinea.

DENDROBIUMS OF NEW GUINEA.

NEW GUINEA is the native home of many interesting and beautiful *Dendrobiums*, several of which are much appreciated by lovers of the genus. To ensure successful cultivation a house should be selected which will receive considerable sunshine and ample heat by artificial means. The plants require a large amount of water, almost throughout the year, only during the resting season should this and the temperature be reduced. Good fibre and sphagnum

moss in equal parts make a suitable compost, and the pans should, if possible, be suspended in the warmest and lightest part of the house.

D. atro-violaceum is well-known as a late winter and early spring flowering species. The clavate pseudo-bulbs bear two or three stout leathery leaves at their apex, and the terminal flower spikes carry creamy-white flowers spotted with deep purple. The three-lobed lip is rich violet-purple within and green without.

D. macrophyllum grows freely in Java and the Molucca Islands, and is also found in New Guinea. A good illustration and description of this species appeared in the ORCHID WORLD, Vol I., p. 268.

D. spectabile grows to a height of two feet; the flowers, with their twisted petals, vary in colour from creamy-yellow to golden-yellow, with crimson spots and markings; the labellum is of somewhat lighter colour.

D. Johnsoniæ has been known since the year 1882, and is in every way an elegant species. The terminal spikes bear large pure white flowers, the only colour being some purple markings in the throat and on the side lobes of the labellum. This species is well figured in "Reichenbachia," 2nd ser., ii. t. 61. *D. Macfarlanei* is synonymous.

D. Phalænopsis is a favourite species with all amateurs, the graceful flower spikes appearing during the summer and autumn months. The variety *Schroederianum* was imported by Messrs. Sander and Sons from North-east New Guinea, and is regarded as a geographical form of the original *D. Phalænopsis* of North Australia. The flowers vary in colour from pure white to deep purple. The variety *Statterianum* was discovered growing on trees near the coast of New Guinea, and was introduced to this country in 1889. The flowers are of a deeper rosy-purple colour than other varieties.

D. bigibbum is of somewhat dwarf habit, and produces racemes of rich rosy-purple, broad-petaled flowers. The same stem will continue to produce these racemes for several successive years. The flowering season is late autumn and early winter.

NEW HYBRIDS.

LÆLIO - CATTLEYA LILACINA.—*Lælia Latona* (*cinnabarina* × *purpurata*) × *Cattleya Pittiæ* (*Schilleriana* × *Harrisoniana*) are the parents of this new hybrid which has recently flowered in Mr. H. T. Pitt's collection, Rosslyn, Stamford Hill.

BRASSO-CATTLEYA PITTIANA.—This hybrid between *Cattleya Mrs. J. W. Whiteley* (*Bowringiana* × *Hardyana*) and *Brasso-*

Cattleya heatonensis (*Digbyana* × *Hardyana*) has been raised in the Rosslyn collection by Mr. Thurgood. The specimen exhibited at the Royal Horticultural Society, October 8th, 1912, inherited the rosy-lilac colour and shape of *C. Bowringiana* to a marked degree. The labellum was slightly fringed.

BRASSOCATTLÆLIA ASTARTE.—Messrs. Sander and Sons have produced this elegant result by crossing *Lælio-Cattleya Martinetii* with *Brassavola Digbyana*. The large flower has sepals and petals of coppery-buff colour, the labellum fringed and of a rose tint.

CATTLEYA ISIS.—One of the finest lipped hybrids has been produced by crossing *C. Ella* (*bicolor* × *gigas*) with *C. Hardyana*. The flower combined all the good points of the three species involved. Raised by Messrs. Sander and Sons.

NOMENCLATURE OF HYBRID.

The Scientific Committee of the Royal Horticultural Society on October 8th considered the question of the nomenclature of a hybrid Orchid referred to it by the Council. The alleged parentage was *Cattleya Fabia alba* × *Cattleya Warscewiczii* var. *Frau Melanie Beyrodt*, and the name suggested for the seedling was *Cattleya Harrisiana*. The Committee considered that this name transgressed the recommendations of the Vienna Botanical Congress regarding plant names in that it was too much like existing names in the same genus, thereby tending to confusion (*e.g.*, *Cattleya Harrisoniana* and *C. Harrisii*); the name was, therefore, not tenable. Further, they thought that although Art. xii. of the rules of horticultural nomenclature permitted the names of Latin form (with signs of hybridity) for such cross-bred plants as this, it would be more convenient if vernacular names were chosen, generally from the classics. In the instance under consideration, the Committee recommended that the exhibitor should be asked to choose such a name.



Cattleya Trianæ, a very beautiful variety in the collection of Clement Moore, Esq.,
Hackensack, N.J., U.S.A.

ORCHIDS AT SOUTH LODGE, HORSHAM.

OF the many eminent Orchid collections in Sussex one of the finest may be seen at South Lodge, Horsham, the residence of F. du Cane Godman, Esq. The numerous greenhouses are constructed in various styles, thus forming suitable cultural atmospheres for a very representative collection of species and hybrids.

The ambition of almost every cultivator is to maintain a succession of bloom throughout the whole year, and the various Orchids in this collection allow this desire to be successfully carried out. During the present season of the year *Cypripediums* produce many welcome flowers, in all their varied tints of colour. Albinos are well represented, insigne *Sanderæ* especially so, numerous plants having been raised from seed.

Calanthes occupy the whole of a span-roofed house, and the general health of the plants leaves nothing to be desired. *C. Veitchii* is the first to produce its graceful rose-coloured flowers, the spikes usually having from three to four dozen blooms, but as many as 54 have been grown on a single spike. This hybrid *Calanthe* lasts in bloom from the commencement of November to the end of January. *C. bella* and *C. William Murray* continue the display until the end of March.

Before the *Calanthes* have entirely finished blooming the *Dendrobiums* commence to open their multitude of many coloured flowers. *D. Wardianum* and *D. Falconeri* are grown in cool, airy houses, with frequent syringing of the foliage, care being always taken that the moisture is evaporated before the process is repeated. This treatment produces strong well-ripened bulbs that give excellent disease resisting results. Last season a medium-sized plant of *D. Falconeri* gave 237 flowers. Under this method of culture the plants are able to withstand a large amount of sunshine, from which they greatly benefit.

Pleiones, frequently called Indian Crocuses, receive their full share of attention in this collection, *P. lagenaria* being particularly well cultivated. The plants are repotted in mid-

winter, soon after the last flowers have faded. The pans are filled three-parts full of crocks, and above this a shallow compost of peat, moss and fibrous loam is placed. The newly-potted plants are grown in the *Cattleya* house until the bulbs are fully matured. From then and until the flower buds become visible the plants are given a few weeks' rest in a cooler house.

Spring-flowering plants include numerous *Odontoglossums*, both species and hybrids, various *Cattleyas* and *Lælio-Cattleyas*, the whole forming a most representative collection, and producing an abundance of bloom.

The *Phalænopsis* house contains excellent specimens of *P. amabilis* and *P. Schilleriana*, both growing well in pure *Osmunda* fibre. The canvas blinds are placed inside this house, a method that allows the sun to effectually warm the house without scorching the foliage of the plants.

During June and July *Thunias* continue the show of bloom. *T. Marshalliana* is the favourite species, on account of its lovely flowers and free-growing nature. After completion of the plant's growth the specimens are stood outside in order that the sun and air may thoroughly ripen the bulbs.

Lælia anceps may be seen in many dozens of grand plants, *Cymbidiums* occupy the major part of a large house, *Odontoglossum* hybrids, chiefly those of *Edwardii*, occupy considerable space, and several houses are devoted to the culture of seedlings, this part of the collection forming a matter of considerable interest. Mr. Geo. Giles is keenly occupied with his practical duties, and the meritorious condition of the collection amply proves his ability.

Odontoglossum Godmanii (*Edwardii* × *Rolfeæ*) received an Award of Merit, R.H.S., January 17th, 1911, and *Lælio-Cattleya Godmanii* (*Iris* × *callistoglossa*) obtained a First-class Certificate, R.H.S., August 13th, 1912.

A very fine specimen plant of *Maxillaria grandiflora* received an Award of Merit, January 22nd, 1907.

A SUGGESTED NOMENCLATURE.

THE ever increasing number of *Cypripedium* hybrids is bewildering. The days of primary hybrids have almost passed, at least so far as the creation of new ones is concerned, and unless we occasionally obtain some new species with which to make a fresh series the future will entirely depend on the success obtained by the continual crossing and selecting of the finest flowers that we now possess. The rediscovery of *Cypripedium Fairrieianum* gave us a plentiful supply of new material to work with, and primary and more complicated hybrids of this species have recently made their appearance in large numbers. But the acquisition of such a distinct and beautiful species is not of every day occurrence, probably we may never discover another of equal merit, or one likely, in any way, to greatly influence our present exhibition type of *Cypripedium*.

Many will argue that we have already reached the "florist's flower" type of bloom, or, in other words, the parental characteristics have become so altered and unrecognisable that all parentage may be discarded, and only fancy names should be given to any particular hybrid considered worthy of distinction, even as many different names as there are distinct varieties from the same pod.

In many ways this method would be simple and useful to the amateur who only purchases his plants for the adornment of his greenhouse or for the sake of making a small increase in his income by the sale of duplicate plants. But there are others, more scientifically inclined, who wish to keep correct records of the parentage, not only for the additional interest which such matters always impart to the individual flower, but in order that reproduction of the hybrid may be effected, should circumstances so require.

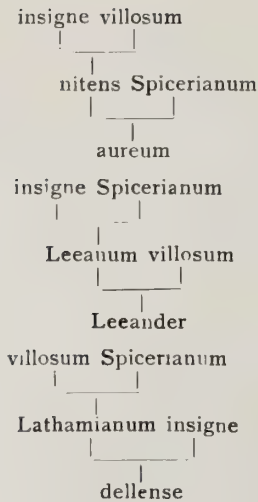
Again, by what means can we tell whether two *Cypripediums* that both possess identical names are one and the same thing. In the majority of cases they are, but if amateurs are left to christen their plants with the most

popular names of present day vocabulary, and without consulting one another or some recognised horticultural society, how are we to proceed with any definite knowledge of the subject.

If all hybrids had been duly registered, and a correct list from time to time published, leading societies could have checked one another and the whole system kept in order. Such, however, has not been the case, but instead we often find societies, amateurs, and trade growers each upholding different names for hybrids possessing exactly similar parentage.

The methods of Nature and the ideals of man are often vastly different. Hybridists have crossed species having certain desired colours that have not appeared in the resulting seedlings: they have attempted to unite certain specific characteristics of three or more flowers with more or less disappointing results: they have endeavoured to perpetuate other ideal qualities without success. The only really satisfactory conclusion to be derived from all these difficulties is that Nature must, and does, have her own way in the settlement of all these perplexing problems. Is it not then advisable to follow more closely her method of developing the *Cypripedium* by amending our system of nomenclature to a style more in accordance with her doctrine of evolution?

Let us take an example from the genus by selecting three well-known species: *insigne*, *villosum*, and *Spicerianum*. Unite the two first and we have a primary hybrid known as *nitens*; the first and third will give us *Leeanum*; and the second and third will make *Lathamianum*. The production of a hybrid containing, theoretically, these three species may be carried out by uniting *nitens* with *Spicerianum*, resulting in a hybrid known as *aureum*; by connecting *Leeanum* with *villosum*, which gives us *Leeander*; and by crossing *Lathamianum* with *insigne*, making *dellense*. The following plan will simplify the parentage:—



It will thus be seen that we have three hybrids recognised as distinct and each containing the same three species, yet known under three different names. Now the flowers of primary hybrids are fairly definite and show little variation from the mean, or usual result of being intermediate in form and colour. With hybrids of three species the results are not so certain, for according to the specific strength of the species involved so will one or more prove dominant. Even more so will be the difference when hybridisation is carried to a further position.

Cypripedium Tracyanum is obtained by crossing aureum with Leeanum, and "The Duchess" is the result of crossing aureum with insigne. Many other combinations of the three species are practicable, and the following list gives those which may be obtained without extending our limit of the same three species:—

AUREUM × insigne, villosum, Spicerianum, nitens, Leeanum, Leeander, Lathamianum, and dellense.

LEEANDER × insigne, villosum, Spicerianum, nitens, aureum, Leeanum, Lathamianum, and dellense.

DELLENSE × insigne, villosum, Spicerianum, nitens, aureum, Leeanum, Leeander, and Lathamianum.

Therefore, in the third generation we have the possibilities of no less than 24 additional different methods of crossing our three

preliminary species. And with what results? Twenty-four hybrids theoretically composed of the same three species, but known under as many different names, giving not the slightest indication that any of them are closely related. And this is not the finality of the matter for each name may have one or more varietal words attached, and these hybrids may yet again be intercrossed *ad infinitum*.

This multiplicity of identities is dealt with by Nature by means of her atavistic power. Atavism may be described as the tendency in offspring to return to the ancestral type. In every one of the previously mentioned 24 hybrids there cannot be more than three species represented. A few may only show signs of two, and it is within the limits of possibilities that the characteristics of only a single species may be apparent.

The term species is applied by botanists to every aggregate of individual plants which resemble each other in all their constant characters. In species, therefore, we have a definite standard upon which to work.

The solution of this intricate problem of nomenclature may best be attained by giving to every hybrid inheriting the characters of the three species—insigne, villosum, and Spicerianum—the name aureum, this being the earliest recorded name for the first hybrid composed of these three species. Varietal names would distinguish the various forms.

Cypripedium aureum is a hybrid known to contain our three selected species, and we should soon accustom ourselves to connect this name with all hybrids showing their characteristics. The practical result would be a saving of dozens of useless names that give no suggestion whatever of the plant's parentage.

A register, of course, would have to be kept of the first name given to any combination or group of certain species, and all subsequent names comprising the same withdrawn.

The practical working of the scheme appears to be simple. Suppose a committee of experts were asked to name a hybrid composed of our three previously mentioned species, they might easily recognise in it the

white dorsal of Spicerianum, the peculiar shape of villosum, and the well-known nature of insigne, but it would be utterly impossible for these experts to correctly determine under which of the 24 different methods it had been produced, and, consequently, under which name it should be placed. The one matter

under the suggested new system which they would be required to settle is, does this hybrid give indications, more or less, that insigne, villosum, and Spicerianum are contained in the parentage? If it does, and no additional species are visible, then it must be named *Cypripedium aureum*.



The propagation of Odontoglossums by means of adventitious growths.

THE PROPAGATION OF ORCHIDS.

EVERYONE is well acquainted with the ordinary method of Orchid propagation. The rhizome, or stem connecting the bulbs, has only to be severed, and the older part, so long as healthy buds remain, in due course commences to grow. The chief factors required to ensure success are division of the plant at a time of year when normal growth commences, and due care taken that sufficient nutritive material to sustain the new growth until root action commences is contained in each separate division of the plant.

One or two healthy plump bulbs are usually sufficient for this purpose, but in the case of shrivelled and older bulbs a larger number will be required.

Propagation by other means is most readily effected in *Dendrobiums*, for the nature of their many "eyed" stems allows a large number of young plants to be produced at a comparatively rapid rate. When the plants at the finish of their growing season are kept in a warm and moist atmosphere insufficient ripening of the flower buds occurs, and many

of these, instead of producing blooms, make new growths which ultimately become separate plants with their own root system.

The most vigorous buds are invariably the first to commence growth, and rapidly consume much of the available nutritive material in the adjacent part of the bulb, consequently the other buds remain dormant through lack of sufficient excitement, or, in other words, deficiency of life-directivity. If two or three young plants are all that the propagator requires, all well and good, but in the case of specially fine varieties a large number is frequently desired. These may best be obtained by entirely separating a healthy unflowered bulb from the plant and placing it in a horizontal position on some clean sphagnum moss, which should be kept moist, and the whole placed in a fairly high temperature. In a short time the nodes, or bud portions of the bulb, will commence to form young plants, and these, as soon as signs of root action are visible, should be removed with a portion of the old stem still attached. The vigour left in the remaining parts of the old bulb will cause other dormant "eyes" to commence growth, and these, when sufficiently large, may as well as later ones be taken off, the process being continued until all the "eyes" or the vigour of the old bulb is exhausted.

Almost every grower of experience has seen large plants of *Odontoglossum crispum* with additional flower spikes, not only one, but even two or three, produced from the apex of the bulb. These are the result of a superabundance of vigour, or life-force, which, failing to find sufficient means of expansion in the normal laterally produced spikes, excites the buds at the apex of the bulbs, and other flower spikes are produced. In a morphological sense flower buds originate in the same way as ordinary leaf buds, and in their earlier stages there is little to distinguish the one from the other. Now these apical buds, under certain conditions, possess the aptitude to form adventitious shoots, which under ordinary methods of cultivation eventually become self-existent plants. The usual course of events in matured bulbs of *Odontoglossums* is for new life to manifest itself in the awakening of one

of the dormant buds situated at the base of the bulb, but in instances where these are absent, either through previous use or damage, Nature, in her perpetual striving to maintain the species, directs the life-force to the apex of the bulb where it usually obtains the desired object by transforming the adventitious apical buds into young growths, or bulbils, and these, in due course, produce normal plants. Our illustration shows young plants in various stages of formation being cultivated in Mr. de Barri Crawshay's collection, "Rosefield," Sevenoaks. *Zygopetalums*, especially *Mackayi* and *intermedium*, are easily propagated in this way.

Propagation by means of young plants produced on the flower spikes is of rare occurrence. *Phalænopsis Lueddemanniana* is a notable exception, young plants being frequently produced on the spikes, much more so than on other species of the genus. Certain *Oncidiums* possess the power of forming young plants in this way, and these in turn produce others, so that three or four generations of plants may be seen all growing on the same parent plant.

Of still greater rarity is the production of young plants on exposed aerial roots of Orchids. *Phalænopsis Stuartiana* and other species have occasionally been seen with this peculiarity, while records show that *Saccolabiums* and *Cyrtopodiums* may also be included. *Neottia Nidus-avis* regularly reproduces itself by forming new plants from the points of the root fibres, although these plants do not appear above ground until flowering strength is attained.

Certain species of *Restrepia* usually have several new growths appearing from the apex of the old bulbs. They obtain nutriment partly from the old plant, but largely by aerial roots. And Lindley, in his "Theory of Horticulture," 1840, states that "offsets spring from the margins of the leaves of *Malaxis paludosa*," a rather rare British epiphytal Orchid.

The propagation of Orchids is a profitable and most interesting study, and anyone who can spend the time in its further investigation will no doubt be handsomely rewarded for his trouble.



Photo by]

[F. Waldock.

Miltonia vexillaria "Snowflake." Received F.C.C., R.H.S., June 4th, 1912, when exhibited by Lieut.-Col. Sir George Holford, K.C.V.O. (gr. Mr. H. G. Alexander), Westonbirt. The specimen had 13 spikes with an aggregate of 73 flowers, and was awarded Cultural Commendation.

ORCHIDS AT BUSH HILL PARK.

RARELY does one see such an immense number of interesting Orchids as are cultivated by Messrs. Stuart Low and Co., in their Bush Hill Park Nurseries, Enfield. One might imagine that the greater part of a tropical forest had been denuded of its treasures in order to complete such a vast assemblage of specimens.

During the many years that this establishment has been in existence importations of Orchids have been received from almost every part of the world; in fact, it would be difficult to determine how many different species have, at one time or another, been collected for shipment to this important firm of Orchid cultivators.

Amateurs, of course, expect to see Colombian species, such as *Odontoglossum crispum* and *Cattleya Mendelii*, well represented, but here they may be seen in thousands, houses 100 feet in length being entirely devoted to their cultivation. Burmese and Siamese, Javan and Bornean, Indian and Australian, are but a few of the various kinds of Orchids that await the visitor's selection at Bush Hill Park.

In these days there are not a few amateurs who have a special liking for the class of Orchid known as "botanical," and for those having this scientific inclination much of value and interest may be discovered. To give a list of these plants would mean filling a column with names almost unreadable by the young amateur, yet to the botanist they are easily understood, for in most cases they describe one or more of the plants' special characteristics. The dissimilarities of the flowers are remarkable, the smaller ones frequently being even more curiously constructed than those of larger dimensions, and often giving greater pleasure to their owner.

Of the several houses devoted to the cultivation of hybrids one is of special interest, for it contains specimens which, if not unique, are certainly amongst the rarest of the rare. As examples, one may mention *Lælio-Cattleya Firminii*, of which a coloured illustration was given in the *ORCHID WORLD*, June, 1911; *Brasso-Cattleya Dietrichiana*, the most richly

coloured of all the *Digbyana* hybrids; *Cattleya Hardyana alba*, with pure white sepals and petals; and *Cattleya Warscewiczii alba*, the latter a small propagated piece from the wonderful specimen owned by Mons. Firmin Lambeau, and which received the extremely rare award of a Gold Medal when exhibited at the Royal Horticultural Society, July, 1912. The beautiful *Cattleya Mendelii alba* var. Stuart Low received a First-class Certificate at the Holland Park Show, 1910.

The *Phalænopsis* house is eminently suited to the cultivation of these handsome plants, the silver-mottled leaves of *P. Schilleriana* are constant features of attraction, and always impart a bright appearance to the house. These plants do not appear to suffer to an appreciable extent from the detrimental influence of late autumn fogs, although not unfrequently the flower spikes are damaged. Some experiments made on *P. Schilleriana* prove that this damage may to some extent be overcome by removing the upper or bud portion of the spike and allowing the lower part to form side branches, the buds on which are so retarded that the flowers open several months later, or at a time when fogs are non-existent.

Of recent importations a very interesting type of *Sophranitis grandiflora* is represented by numerous specimens. The bulbs are all of dwarf growing habit and remind one of the *militaris* type, now rarely seen, but which produces large, round-shaped flowers of intense scarlet colour. *Cattleya gigas* has also been lately received in excellent condition, the plants are well supplied with healthy leaves, and all the buds are in a dormant condition.

In the early days of Orchid collecting many wonderful specimens were discovered by Messrs. Low's collectors, proof of which may still be seen in several interesting photographs. One of these depicts a marvellous specimen of the Siamese *Rhyncostylis coelestis*, the erect flower scapes forming a perfect mass of bloom, which to this day has never been equalled.

THE CULTIVATION OF ODONTOGLOSSUM CRISPUM.

COLOMBIA has yielded many *Odontoglossums*, some of great beauty, others of botanical interest, and a few of comparative rarity. Although our special attention may be devoted to any one of these classes everyone will agree that, for general purposes, *Odontoglossum crispum* easily holds the premier position among cool house Orchids. The great utility of the flower spikes for decorative purposes, the comparative ease with which the plants can be collected, and the somewhat low temperature required for their cultivation are factors which have assisted in making this species extremely popular.

The plants are collected by natives in the various districts surrounding Bogota, at which place they are stored until sufficient numbers have been procured for shipment abroad. The early importers fastened the plants around stout sticks which were afterwards secured in large packing cases in such manner that no two plants touched each other. This method, although fairly successful, did not allow of many plants being packed in a case. The practice of recent years has been to carefully prepare the plants by cutting off all roots and leaves, and to place them in layers, using dried bracken fern as packing material, in stout cases. For some unexplained reason the largest plants were often placed in the centre of the box where there was little ventilation, and when any delay on the journey occurred these were the first to die; probably the extra amount of moisture in these large-bulbed plants was responsible for their rapid decay. Three cases usually contain one thousand plants.

Of late years not many importations have reached this country, and the few plants occasionally received have been rapidly dispersed to various amateurs. The plants, after their six or eight weeks' journey in close confinement, arrive in a delicate condition: sometimes the majority are dead and half-rotten, at other times almost all are alive, much depending on the season of the year and the length of time occupied in transit.

The plants, as soon as unpacked, should be carefully protected from direct sunlight by either placing them in a heavily shaded house or else by laying them on the staging and covering them with sheets of paper. All dead leaves and other waste material often found adhering to them should be carefully removed. No water will be required for the first few weeks, the atmospheric moisture of the house being quite sufficient during this period.

The new growth is often hidden beneath one of the dry side leaves and should be carefully handled, for it is very fragile. The best plan is to split this dry leaf down the middle and carefully remove each half separately. The new roots will then be produced more easily and will have nothing to prevent them at once entering the compost. After a short time the plants may be accustomed to more light and finally placed among the established plants where the usual growing conditions prevail.

Potting the plants will next occupy the grower's attention. One cannot be too careful in selecting a pot of suitable size, that is, one which will just allow room for a new bulb to be made. It must be remembered that in the first potting the whole of the compost is new and will be quite sufficient for the plant during the first twelve months. If too large a pot is used to start with the surplus compost rapidly becomes sour and is a danger to the health of the plant. A well-rooted plant absorbs a large amount of water from the compost and effectually prevents it becoming stale. Another point to remember is that all roots must have air, consequently they are quite unable to enter a solid mass of material such as is often seen when the compost has been too firmly placed in the pot. The majority of the roots of an established plant may be seen growing round the outside of the ball of compost, for it is between this material and the inside of the pot that they can secure the most airy position suitable to their requirements.

At the conclusion of about twelve months' growing the majority of the plants will have

filled their pots with roots and will require further attention. Although no plant should remain for long in a starved condition there is undoubtedly a season for every Orchid when this operation of re-potting may be best accomplished.

For the most successful cultivation of *Odontoglossum crispum* the plants should be divided into two sections, according to their size. All plants in less than four inch pots should be cultivated under "growing" conditions, and those in larger pots under "flowering" conditions. Some further explanation is probably needed. Small plants are of little utility, either for sale or for providing flower; these must, therefore, be grown on as rapidly as possible. Large plants are expected to yield decorative results, and the treatment accorded should be such that every encouragement is given them to produce good spikes of flower, and these of lasting quality and good substance.

The growing treatment. The potting material should be fairly loose, and consist of about one half of either peat, *osmunda*, A.I. fibre, or *polypodium*, or a mixture of several is somewhat better, and about one quarter sphagnum moss and one quarter oak or beech leaves. The whole should be thoroughly mixed and chopped up; a good method is to run it through a chaff-cutter. This compost should be lightly worked in to within about half an inch of the top of the pot, the surface may be either trimmed with a pair of scissors or else covered with a layer of finely chopped sphagnum moss. By damping the compost before use it will be found to be much more pliable and less likely to damage the tender roots of the plant.

The potted plants should be placed in a shady house where there is an abundance of moisture and a minimum temperature of 50 degrees. If the leaves assume a bronze or purple tint it is a sign that they are receiving too much sunshine. Plants which are grown in an airy and bright position ripen their bulbs to such a degree that they become hard, and make very slow growth afterwards. The floor, staging and all exposed material in the house should be frequently damped down;

and on all favourable occasions the plants should be lightly syringed overhead. Any flower spikes should be pinched out as soon as they appear, but if the owner is very anxious to see the variety of the plant, then the flower spike may be disbudded, leaving only one or, at the most, two buds. By this method of cultivation the plants will make three bulbs, each one considerably larger than the last, in the course of two years.

The flowering conditions are somewhat more easily maintained, for the pots, being larger, will require less water, and the atmosphere need not contain quite such a constant supply of moisture. The compost must be of a firmer and more substantial nature, one that will last a year, or in the case of very large plants two years. The difficulty of obtaining really good peat is yearly increasing; its place has, however, been taken by other materials which yield excellent results. In the majority of collections these results are considerably better, and there is no doubt that much of the improvement in the cultivation of this species is due to the more suitable composts which are now obtainable.

There are one or two methods of potting that have given excellent results and leave little room for further experimentation. Break or cut the peat or other fibre in lumps about the size of hen's eggs, and carefully shake out all surplus dust. After placing a few crocks at the bottom of the pot work in the lumps of fibre with a potting stick, using at the same time a liberal supply of sphagnum moss to fill up the crevices.

Another method is to make a mixture of one half *osmunda*, one quarter *polypodium*, and one quarter sphagnum. This is used to fill up the larger part of the pot, the top inch or so of space being afterwards filled up with A.I. fibre and sphagnum moss fairly well compressed. Finally, the surface may be trimmed with a pair of scissors. This method has a very neat appearance and seems particularly beneficial to the young roots, which much dislike entering a rough, dry lump of *osmunda* fibre. When, however, the *osmunda* lumps are beneath the surface they rarely become so dry as to be distasteful to

the roots. The covering of the surface with a layer of sphagnum moss alone is not recommended for large plants, for when so done the air has little chance of entering the compost, and it has previously been mentioned that Orchid roots have a strong dislike to a sodden, solid material.

Large plants may always be subjected to

a lower temperature during the dull winter months. With a somewhat dry condition of the atmosphere a minimum of 45 degrees will do no harm. Any slight condensation, due to an excess of atmospheric moisture, will do no harm to the plants, but it may produce an unsightly spotted condition of any open flowers.

CALENDAR OF OPERATIONS FOR NOVEMBER.

By J. T. BARKER, The West Hill Gardens, Hesse, E. Yorks.

THE Orchid grower has now reached the most difficult month in the whole year with which to contend, the climatic conditions being so varied and the changes so rapid that his skill and patience will often be taxed to the utmost.

The temperatures given last month for the different departments should be maintained to the end of the year. In the case of extremely cold weather prevailing a fall of a degree or two will do no harm, but excessive fluctuations are most harmful. Clear frosty weather, if accompanied with sunshine, is most beneficial, but dull, moist, foggy weather may do irreparable harm if the temperature is allowed to fall too low. Cultivators who reside in districts where November fogs are unknown can hardly realise the damage that is done to collections situated on the outskirts of large cities.

Ventilation is one of the most essential things in the cultivation of all plants in glass houses; every effort should be used to ensure daily ventilation. It is often advisable to use slightly more fire heat to allow one or more ventilators to be opened, and with a little thought it is astonishing what can be accomplished even in this small matter. I am thoroughly convinced that it is in these small details where many amateurs often go astray.

Watering the plants at this season will need careful attention; not only must the wants of the plant be studied but also the nature of the compost in which it is growing, for some composts retain moisture for a much longer period than others. In every case the cultivator should be quite certain that the plant requires water before applying it. I am no

believer in dribbling water upon any plant; if it is not dry enough to receive a good soaking leave it until the following day, it will take no harm. The dribbling process is injurious to any plant, and, to my mind, doubly so in the cultivation of Orchids.

Dendrobiums of the spring-flowering section will by this time have finished their growths, and should be thoroughly cleaned and placed in their resting quarters. Give them a position where they may receive all the light possible. When these plants are at rest only sufficient water should be given to prevent the bulbs shrivelling; if this occurs, or their foliage is lost, the constitution of the plants suffers to such an extent that they are frequently worthless. *D. Dearei*, if still in full growth, should have every encouragement possible. A shady position in the stove or East Indian house answers its requirements, and no Orchid more fully repays one than this species, for when well grown its pure white flowers last practically through the summer months. *D. Phalænopsis* and *D. formosum*, as they finish flowering, should be induced to take a decided rest, and for this purpose they should be removed to a slightly lower temperature. A sunny position in a warm *Cattleya* house will suit them well during the winter months; they should only receive sufficient water to keep the bulbs plump. *D. Jamesianum* and *D. infundibulum*, which have been growing in the cool house, should now be removed to the cool end of the intermediate house, which will suit them much better than if allowed to remain in the cool house during the winter months.

Lælia anceps and its varieties. Owing to the absence of sun these plants, in many cases, will not produce flower spikes in such profusion as they did last year. This class of plant delights in an abundance of light at all times, a free circulation of air, and when in growth an abundance of moisture. At this season water should be carefully applied until the flower buds appear, when it should be gradually reduced. Care should be taken that the tips of the spikes do not touch the glass, and where the head room is limited they should be tied down so that they do not reach the roof. Before the flower buds commence to expand it is advisable to thoroughly clean every plant, and tie the spikes neatly to stakes in such manner that they receive the maximum amount of light. The periodical cleansing of plants is, in my opinion, the only means of effectually fighting the various pests with which we have to contend.

Lælia harpophylla should now be removed to a light position in the *Cattleya* house, and afforded water at the roots until the flowers expand, when the plants should be kept on the dry side and in a cool intermediate house. The bright orange-red flowers are very attractive and much appreciated at this season of the year. *Lælias*, such as *albida*, *autumnalis*, and others, that are developing their flower spikes, should be treated as advised for *L. anceps*.

Odontoglossums, such as *grande* and *Schlieperianum*, that have passed out of flower should be placed in a dry position in a cool intermediate house, where they will rest. Plants of *O. Insleyi* that are producing their flower spikes must have liberal treatment until these are developed, when they may be treated in a similar way to the previously mentioned species. This class of *Odontoglossum* thrives much better when treated in this manner than when grown in a lower temperature during the winter months. Slugs and woodlice are very fond of these species; they should be diligently searched for or trapped in the usual way.

Plants of *Odontoglossum crispum*—also the innumerable hybrids of which this species is a parent—that are not in a fit condition to be

repotted, will be better if left until the early spring; it is not advisable to disturb them during the dull days of winter. The warm growing *O. citrosimum* should have every encouragement given to complete its growth, and if at all backward or late it will be advisable to remove it to a place where more heat is obtainable.

Deciduous *Calanthes* that are pushing up their flower spikes, and, at the same time, losing their foliage, will require some care in the matter of affording moisture at the roots. If water is given in excess much harm will accrue, and if given in insufficient quantity the bulbs will unduly shrivel. No hard and fast lines can be laid down regarding the root moisture a plant can take up.

Cattleyas and *Lælias*. Many members of this most beautiful family are now in flower, and as soon as they finish may be repotted, providing that new roots are pushing forth. The great mistake generally made in the cultivation of these plants is the application of water to newly potted plants before the roots have penetrated the new compost.

Cypripediums. The heat loving *Cypripediums*, such as *Stonei*, *philippinense*, *Lowii*, *Rothschildianum*, and the hybrids *Morgania*, *l'Ansonii*, *Shillianum*, and others of this class are now growing freely and must have an ample supply of water both at the roots and in the atmosphere. Spraying and syringing during the winter months are not recommended, for there is always the danger of water falling in the centre of the growth and causing decay. An excess of water will also cause the loss of roots.

Winter flowering *Cypripediums*. These most useful plants are fast pushing up their flower spikes, and will enliven the house in which they are grown far into the new year. To the lover of these fascinating plants there is plenty to admire, and perhaps in no class of plants has the hybridist made greater strides. A few seasons ago some of the later acquisitions would have been thought impossible to produce. Before the plants come into bloom they, like all others, should be thoroughly cleaned, the flower spikes neatly staked so that each receives a fair share of

light, and every aid and inducement given to them that they may all develop into perfect blooms.

If the plants of the *Selenepedium* section require repotting they may be done at this season, using a compost similar to that advised in previous numbers for the green-leaved *Cypripediums*. The plants must be carefully watered until they become established, after which they delight in being kept moist at all times. These plants, to a great extent, have lost their popularity, but there are many of much interest and worthy of cultivation. In many cases this section is grown in too much heat, a *Cattleya* house temperature will suit them admirably.

Coelogyne cristata has finished growing, and some plants are pushing their flower spikes. During active growth this most useful species requires considerable quantities of water at the root, but at the present time much less will suffice. If an insufficient supply

is given the flower spikes will fail to develop satisfactorily.

Lycaste Skinneri. This useful Orchid will also be finishing its growth, and commencing to show its flower spikes. The plants should be kept fairly dry, but on no account must the bulbs be allowed to shrivel. Weak liquid manure is often recommended to be applied to this and the preceding Orchid, but if the plants have a sweet rooting medium and are in good health they will not require it. Many cases of disease are attributable to its use.

General Remarks. The principal work of the month will be the cleansing of the houses and their inmates, and the general overhauling of the collection. Everything should be thoroughly done, so that by the time the spring is upon us we may be able to take advantage of it. One of the great axioms of plant culture is to do the right thing at the right time, in the right manner, and to do that thing thoroughly well.

DECORATIVE EPIDENDRUMS.

ONE is frequently at a loss to know how to cover up a pillar or conspicuous wall in an Orchid house. Epidendrums prove most useful subjects for this purpose, the long erect stems of some species growing to a height of ten or more feet, and besides being clothed with numerous small distichous leaves, they produce at their apex many flowered spikes of long lasting quality.

Some of these flower-heads, especially those of hybrid Epidendrums, continue to produce blossoms for the long period of twelve months. Not so long ago, at one of the Temple Shows, Sir Jeremiah Colman exhibited specimens which were still producing blossoms from the identical flower-spikes shown at the same important event held the previous year.

For a selection, the following will prove of value where tall growing specimens are required:—*E. Cooperianum*, a very beautiful species with racemes of pale olive-green or yellowish-brown flowers having a large three-lobed lip of bright rose colour; *E. evectum*, a species with deep magenta-purple flowers and often proved to be a perpetual bloomer; *E.*

Frederici Guilielmi, very ornamental, the rich crimson flowers having white columns which give them the appearance of possessing white eyes; *E. paniculatum*, with dark green leaves often spotted beneath with purple, and producing branched spikes of fragrant rosy-lilac blossoms; *E. radicans*, rather shy flowering, but the bright orange-scarlet blossoms are continually produced from the same spike during a period of three months; and *E. Wallisii*, a comparatively recent introduction with numerous sweet scented flowers of golden-yellow colour marked with small carmine-crimson spots; the flowers open during the months of October and November and last from three to five months in perfection.

The best known Epidendrum hybrids include *E. O'Brienianum*, the result of crossing *evectum* with *radicans*; *E. Boundii*, a hybrid of *radicans* and *Burtonii*; and *E. Endresio-Wallisii*, the latter one of the most useful and popular hybrids. It was raised by Mr. Seden, and exhibited by Messrs. Veitch and Sons at the Royal Horticultural Society, January 12th, 1892, when it received a First-class Certificate.

HYBRIDS OF ODONTOGLOSSUM ROSSII.

THREE natural hybrids of *Odontoglossum Rossii* exist in *asperum* (R. $\times$ *maculatum*), *Humeum* (R. $\times$ *cordatum*), and *vexativum* (R. $\times$ *nebulosum*), the latter also known as *Od. Duvivierianum*. It is true that the parentages have not been proved by artificially raising and flowering these hybrids, but from the characteristics of their flowers we may safely assume that they are correct. One other Mexican species that would make an interesting hybrid with *Od. Rossii* is *Od. Cervantesii*. In many ways it is similar, the chief difference being in its broader petals and the markings arranged in concentric fashion.

All important *Rossii* hybrids of the future will be those between this Mexican and the various Colombian species. The few already produced give some idea of further possibilities and the most likely means of obtaining the finest results.

Odontoglossum spikes may be roughly divided into three classes. The tallest would contain species of the *Edwardii* and *ramosissimum* type; the second class, to which the majority belong, may be exemplified by *crispum*; and the shortest class by the dwarf-

growing *Rossii*. By the continual use of *Od. Rossii* we shall be able to develop a most useful and elegant section of the genus, and, moreover, one likely to be of very great interest.

Odontoglossum Rossii is particularly distinct, the bright chrome yellow of the crest and surrounding surface is very beautiful, and one has only to mentally blend this with the handsome yellow crest of *Harryanum* and the future possibilities are at once apparent. Some amateurs may suggest that yellow is not a suitable colour to encourage, but these opinions rapidly change when hybrids such as *Jeannette* and *Woodroffeæ* are produced, for in these the contrast of the bright yellow crest supported by the large violet-purple labellum is singularly effective.

Colour arrangement follows fairly definite methods in the primary hybrids of this species; but in secondary and those containing more than two species the variation will be in accordance with the complexity of the parentage. The basal markings on the petals of *Rossii* will always create in the hybrid a tendency to produce colour accumulation in the same place, although this situation may be more or less extended in agreement with the spotted area of the other parent.

ROYAL HORTICULTURAL SOCIETY.

October 8th, 1912.

MEMBERS of the Orchid Committee present: J. Gurney Fowler, Esq. (in the chair), Messrs. Jas. O'Brien (hon. sec.), R. A. Rolfe, J. Wilson Potter, W. Thompson, R. G. Thwaites, F. J. Hanbury, T. Armstrong, A. McBean, C. H. Curtis, J. Charlesworth, J. Cypher, W. P. Bound, J. E. Shill, H. G. Alexander, A. Dye, W. H. White, Gurney Wilson, W. Bolton, J. S. Moss, de B. Crawshay, Sir Harry J. Veitch, and Sir Jeremiah Colman, Bart.

Lieut.-Col. Sir George Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), showed *Lælio-Cattleya Berthe Fournier* var. *Fascinator*, with six large rose coloured flowers; *L.-C. Priam*, with seven large *Harrisoniana* shaped

flowers; and the elegant *Cypripedium Draco* "Holford's var."

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), was awarded a Silver Flora Medal for a very interesting group. The centre contained the remarkable *Cattleya Iris* var. *King Edward VII.*, which has previously had a First-class Certificate; *Sophrocattlælia Elissa*, of a pretty buff colour; *Lælio-Cattleya Mrs. Donald MacMaster* var. *Carmencita* (*C. Dowiana Rosita* $\times$ *L.-C. luminosa*); and *L.-C. Elva* var. *Herbert Goodson*.

Messrs. Sander and Sons, St. Albans, were awarded a Silver-gilt Medal for a large group containing the pretty *Cattleya Isis*; *C. Fabia Rex*, white with a finely-coloured lip;



ODONTOGLOSSUM JEANNETTE.

(*O. Rossii rubescens* × *O. amabile heatonense*.)

F.C.C. R.H.S. March 14, 1911.

C. Freya (Mantini $\times$ aurea); *Cypripedium* Victory, of rich colouring; the elegant *Catasetum* Russellianum, and numerous *Odontoglossum* and other hybrids.

E. H. Davidson, Esq., Borlases, Twyford, received a Silver Flora Medal for a good group of *Cattleya labiata* containing many very dark forms; *Lælio-Cattleya* Virginia, and *Odontoglossum* Nathaniel var. Eric, the latter carrying a spike of nine richly-blotched flowers.

H. T. Pitt, Esq., Rosslyn, Stamford Hill, was awarded a Silver Flora Medal for a well arranged group. Plants of special merit included the superb *Cattleya Hardyana* var. Countess of Derby, *Odontoglossum* bictonense album, *Lælia monophylla*, with six spikes, and *Miltonia vexillaria* superba.

Messrs. Stuart Low and Co., Bush Hill Park, obtained a Silver Flora Medal for a good group containing the beautiful *Cattleya Gaskelliana* Hodgkinsonii, with pure white sepals and petals, and a bluish-purple blotch on the lip; the curious *Stanhopea graveolens*, the rare *Cattleya O'Brieniana* alba, and the pretty *Pleione lagenaria*.

Messrs. Charlesworth and Co., Haywards Heath, showed many excellent specimens, the best being *Cattleya Fabia* alba, *Lælio-Cattleya* Messina (Cappei $\times$ Mantinii), *L.-C.* Neleus, and *Stanhopea occulata*.

Messrs. J. Cypher and Sons, Cheltenham, were awarded a Silver Banksian Medal for a fine exhibit of *Cypripediums*, including *Troilus*, *Felicity*, and *Maudia*. *Miltonia vexillaria* Leopoldii, and various *Cattleyas* were also shown.

Messrs. J. and A. McBean, Cooksbridge, staged several examples of their noted strain of *Odontoglossum crispum*, a fine form of *Odontioda* Charlesworthii, and a pretty variety of their *Cattleya* Lord Rothschild.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford, showed *Cypripedium Rolfeæ* "Peeter's var.," a very good dark form.

Mons. Firmin Lambeau, Brussels, exhibited the handsome *Catasetum splendens imperiale*, with wax-like flowers having a rich crimson coloured lip.

R. G. Thwaites, Esq., Chessington, Streatham, exhibited various *Odontiodas*, including *Devossiana*, and good examples of *Cattleya Fabia*.

William Thompson, Esq., Walton Grange, Stone, showed the pretty *Odontoglossum* Nerissa (nævium $\times$ crispum), and *Cypripedium* Our Queen, to which an Award of Merit was given January 26th, 1909.

E. G. Mocatta, Esq., Addlestone, exhibited *Odontoglossum* Jasper "Woburn var.," a very pretty flower of excellent shape.

F. du Cane Godman, Esq., Horsham, sent *Lælio-Cattleya* Godmanii var. Aurora, a handsome hybrid between *Iris* and *callistoglossa*.

Pantia Ralli, Esq., Ashted Park, Surrey, exhibited a very fine variety of *Cattleya Dowiana* aurea.

C. J. Phillips, Esq., The Glebe, Sevenoaks, showed *Lælio-Cattleya* The Hon. Mrs. Astor, a large creamy-white flower; a very elegant *Odontoglossum* hybrid; and a fine variety of *Oncidium* Forbesii.

E. Townson, Esq., Ellerdale, St. Albans, staged *Cypripedium* Ellerdale (bingleyense $\times$ insigne Harefield Hall), a good, large flower with a rose flushed dorsal having crimson spotting, the sepals and petals rich mahogany colour.

Mons. Chas. Maron, Brunoy, France, showed *Brasso-Cattleya* Olympia (C. Solfaterre $\times$ B.-C. Mrs. J. Leemann) of a light yellow colour; *Cattleya* Marguerite Maron (Eldorado alba $\times$ labiata Cooksoniæ), a broad flower with white sepals and petals; and *Cattleya Fabia* alba.

Mr. Sidney Flory, Tracy's Nursery, Twickenham, staged the rare *Pescatorea* Dayana rhodacra, and two forms of *Warscewiczella* marginata.

The Duke of Marlborough, Blenheim Palace, exhibited *Cypripedium* Jessie (Charlesworthii $\times$ Fairrieanum), a pretty hybrid fairly intermediate in form and colour.

AWARDS.

FIRST-CLASS CERTIFICATE.

Cattleya Harrisiana (*Fabia* alba $\times$ *Warscewiczii* var. Frau Melanie Beyrodt), from

C. J. Phillips, Esq., The Glebe, Sevenoaks.—A beautiful hybrid resembling *C. Hardyana alba*. Sepals and petals white, labellum with ruby-purple front.

AWARDS OF MERIT.

Cattleya Hardyana var. *Herbert* Goodson, from H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. G. E. Day).—A very large flower with pure white sepals and petals, the reddish-purple labellum being veined with gold. One of the best of its class.

Miltonia Harwoodii (*M. vexillaria* × *C. Noëzliana*), from Sir Trevor Lawrence, Bart.—An interesting hybrid with an erect spike of nine bright rose-pink flowers.

Cattleya Mrs. Pitt "*Charlesworth's* var." (*aurea* × *Harrisoniana*), from R. le Doux, Esq., Marlfield, W. Derby, Liverpool.—One of the finest varieties of this well-known hybrid. Flowers of a deep rose colour, the labellum handsomely marked with orange, over which is a crimson mottling.

Odontioda Charlesworthii "*Orchid Dene* var.," from Messrs. J. and A. McBean, Cooksbridge.—An excellent form, the large flowers of deep blood-red colour.

October 22nd, 1912.

MEMBERS of the Orchid Committee present: J. Gurney Fowler, Esq. (in the chair), Messrs. James O'Brien (hon. sec.), Gurney Wilson, J. Wilson Potter, R. G. Thwaites, F. J. Hanbury, T. Armstrong, A. McBean, C. H. Curtis, W. Cobb, J. Charlesworth, J. Cypher, W. H. Hatcher, J. Shill, H. G. Alexander, A. Dye, W. H. White, C. J. Lucas, W. Bolton, J. S. Moss, Stuart Low, de Barri Crawshay, R. Brooman-White and Sir Jeremiah Colman.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill), received a Silver Flora Medal for a very attractive group of choice *Cattleyas*, including *C. Hardyana alba* with 4 flowers on a spike; *C. aurea pura*, a very distinct golden-yellow variety showing little of the usual purple colouring; *C. Oriel* var. *Corona* (*Hardyana* × *Mantini*), a very beautiful hybrid; and *C.*

labiata Opal. *Cypripedium Alma* Gevaert, an elegant albino form, was also shown.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), was awarded a Silver Banksian Medal for a well-arranged group. The special plants included *Cattleya labiata alba* "Snow Queen"; *C. Alicia*, which has previously been certificated; the erect flowering *C. Suavior*; and the scarce *Lælia splendens* (*crispa* × *purpurata*).

Lieut.-Col. Sir George Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), exhibited *Cattleya Mercutio* (*Harrisoniana* × *Lord Rothschild*), a large rose coloured flower with broad segments and a bright yellow disc on the labellum.

W. Cobb, Esq., Normanhurst, Rusper, showed *Cattleya* Mrs. Temple; *Cattleya Fabia* "Cobb's var.," one of the finest and darkest forms yet seen; and *Zygocloax Charlesworthii* "Cobb's var.," a fine variety.

W. R. Lee, Esq., Plumpton Hall, Heywood, staged *Cypripedium Overtonii* (*fulshawense* × *Leeanum corona*), a large flower with the dorsal sepal well developed and resembling an improved Harefield Hall variety.

C. J. Phillips, Esq., The Glebe, Sevenoaks, exhibited *Cattleya aurea* "Glebe var.," a grand form with three large flowers of exceptional colour; *Lælio-Cattleya Bola superba*, an excellent variety; and *Cattleya Basil* (*Mantini* × *Enid*), a rich, dark purple flower.

Messrs. Sander and Sons, St. Albans, were awarded a Silver Flora Medal for an extensive group of various autumn flowering hybrids and good species. Many excellent *Cattleya Fabias*, the dark coloured *C. Mantini*, *C. Portia*, and *C. Iris* were specially meritorious.

Messrs. J. Cypher and Sons, Cheltenham, obtained a Silver Flora Medal for an elegant display of *Cypripediums*, the varieties *Troilus*, *Maudia*, and *Felicity* being specially good.

Messrs. Stuart Low and Co., Bush Hill Park, Enfield, were awarded a Silver Flora Medal for an effective group of specimen *Dendrobium formosum*, all exceedingly well flowered, the pretty *D. Phalænopsis*, and numerous varieties of *Cattleya Fabia*. Among the scarce Orchids were *Cattleya maxima*,

Epidendrum xanthinum, and *E. osmanthum*. *Lælio-Cattleya* Pallas with white sepals and petals, and good coloured forms of *Vanda coerulea* were also noticed.

Messrs. Hassall and Co., Southgate, obtained a Silver Banksian Medal for a group containing good varieties of *Lælio-Cattleya* Mrs. Temple (*L.-C.* Henry Greenwood × *C. Mossiæ*); *Cattleya Sylvia* (*Fabia* × *aurea*), some of which were golden-yellow, while others had white sepals and petals. Select varieties of *Cattleya labiata* and *C. Hardyana* were shown in fine form.

Messrs. Charlesworth and Co., Haywards Heath, exhibited *Oncidium splendidum aureum*; *On. varicosum Lindenii*, with a rich blotch of colour on the crest area; *Cypripedium Gaston Bulteel*, of rich pigment; *Cattleya Fabia alba*, with broad segments; and *Lælio-Cattleya Arachne* (*labiata* × *Haroldiana*), a dark coloured hybrid of considerable promise.

Messrs. J. and A. McBean, Cooksbridge, staged *Sophrocattlælia* Helen (*L.-C.* Gottoiana × *S.-L.* heatonensis), a very large flower of deep rosy-purple colour with a slight scarlet flushing over all the segments, the large labellum prettily frilled; also *Cattleya Fabiata* (*Portia* × *Fabia*), an elegant hybrid of great merit.

Mr. E. V. Low, Vale Bridge, Haywards Heath, staged *Cattleya labiata* "The Sultan," a distinct variety with pure white sepals and petals and coloured labellum; also *C. labiata alba* "Lady Duff," with broad pure white petals and only the slightest trace of colour on the flat part of the lip.

Messrs. Mansell and Hatcher, Rawdon, Yorks., exhibited the interesting *Cirrhopetalum refractum*, *Oncidium ornithorynchum album*, and other meritorious specimens.

Messrs. James Veitch and Sons showed many elegant Orchids in their extensive group.

Mr. E. H. Davidson, Orchid Dene, Twyford, staged *Cattleya labiata alba*, of great beauty; *Lælio-Cattleya Orion* var. *J. Lakin* (*Haroldiana* × *aurea*), a distinct hybrid with buff-yellow sepals and petals and a broad lip of purple colour; also

Sophrocattlælia Sandhage, a very fine rosy-red flower.

AWARDS.

FIRST-CLASS CERTIFICATES.

Cattleya labiata "Opal," from Baron Bruno Schröder.—One of the finest forms. The large flowers have broad, pure white sepals and petals, the labellum with slight rose veining.

Cypripedium Pallasathenæa, from W. R. Lee, Esq., Plumpton Hall, Heywood.—One of the largest and finest *Cypripediums*, the broad dorsal sepal reminding one of *insigne* Harefield Hall.

Cymbidium Doris (*Tracyanum* × *insigne*), from Messrs. J. and A. McBean, Cooksbridge.—A very attractive hybrid with an upright spike of 10 creamy-rose flowers handsomely marked with red-brown. The labellum open, spotted with dark brown.

AWARDS OF MERIT.

Lælio-Cattleya Hemptinne, from Count Joseph de Hemptinne, Ghent.—One of the finest hybrids of the yellow section. Flowers of golden-orange colour, the lip slightly darker and with a buff tinge. The parentage is *L.-C. ronselensis* × *aurea*.

Cattleya Maggie Raphael "Goodson's var.," from H. S. Goodson, Esq., Fairlawn, Putney.—A particularly well-formed flower with erect rose-purple segments and a broad, open labellum.

Lælio-Cattleya Golden Oriole "Holford's var.," from Lieut.-Col. Sir George Holford, Westonbirt.—A good example of this favourite hybrid. Sepals and petals rich golden-yellow, labellum very broad, of a rich crimson-red.

Cattleya Comet var. *Princess Mary* (*Warneri* × *aurea*), from Pantia Ralli, Esq., Ashted Park, Surrey.—A very beautiful hybrid with erect creamy-white sepals and petals, the labellum almost entirely bright yellow.

Sophrocattlælia Menippe var. *H. S. Goodson* (*Hardyana* × *S.-L. heatonensis*), from H. S. Goodson, Esq., Fairlawn, Putney.—

Probably the most richly coloured of all the *Sophranitis* hybrids. Flowers dark crimson-red.

Soprocattlælia Sandhage (*Enid* × *S.-L.*

heatonensis), from Mr. E. H. Davidson, Orchid Dene, Twyford.—A large, bold flower of rosy-red colour, the labellum very dark crimson, throat veined with gold.

MANCHESTER ORCHID SOCIETY.

October 3rd, 1912.

MEMBERS of the Committee present: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, J. Bamber, H. G. Bennett, J. Butterworth, J. C. Cowan, J. Cypher, J. Evans, A. Hanmer, W. J. Hargreaves, W. Hatcher, W. Holmes, J. Lupton, D. McLeod, C. Parker, F. K. Sander, H. Thorp, Z. A. Ward, A. Warburton, H. Arthur (Secretary), and Dr. Hartley.

W. R. Lee, Esq., Heywood, was awarded a Large Silver-gilt Medal for a beautiful group of various Orchids.

Z. A. Ward, Esq., Northenden, received a Silver-gilt Medal for a group composed principally of *Cattleyas* of the Iris section.

R. Ashworth, Esq., Newchurch, staged a pretty group of select species and hybrids to which a Large Silver Medal was awarded.

Col. J. Rutherford, M.P., Blackburn, was granted a Large Silver Medal for a good group of various *Cattleyas* and other Orchids.

Rev. J. Crombleholme, Clayton-le-Moors, received a Silver Medal for a well arranged group of *Cypripediums*.

J. McCartney, Esq., Bolton, obtained a Silver Medal for a group of interesting hybrid *Cattleyas*.

O. O. Wrigley, Esq., Bury, staged several plants of *Cypripedium Maudiaë*, and many others of considerable beauty.

R. le Doux, Esq., West Derby, exhibited several good Orchids to which certificates were awarded.

S. Gratrix, Esq., Whalley Range (gr. Mr. Brown), staged *Cyp. Troilus* "West Point."

Messrs. J. Cypher and Sons, Cheltenham, obtained a Silver Medal for a meritorious exhibit of *Cypripediums*.

Mr. J. Evans, Congleton, was awarded a Silver Medal for a group of excellent *Cattleya* hybrids.

Messrs. A. J. Keeling and Sons, Bradford, secured a Silver Medal for an interesting exhibit.

Messrs. Sander and Sons, St. Albans, staged many very fine specimens of various Orchids.

Mr. W. Shackleton, Great Horton, staged various species and hybrids.

Mr. J. E. Sadler, Newbury, staged two good forms of *Od. crispum*.

AWARDS.

FIRST-CLASS CERTIFICATES.

Cattleya Lord Rothschild, a fine flower of good even colour, and *C. Lord Rothschild alba* var. Dr. John Utting, a good form with white sepals and petals and a brilliant purple lip. Both from R. le Doux, Esq.

AWARDS OF MERIT.

Odontoglossum Ada Barclay and *Cypripedium Domingo de Larranaga* (*nitens* × *Standard*), both from R. le Doux, Esq.

Lælio-Cattleya luminosa aurea (*tenebrosa* "Walton Grange" × *aurea*); *L.-C. Golden Oriole*, *Cyp. bellatulum* var. *majesticum*, and *Cattleya Apex* (*Enid* × *Mendelii*), all from R. Ashworth, Esq.

Cattleya Germania "Ward's var.," from Z. A. Ward, Esq.

Cypripedium Troilus "West Point var.," from S. Gratrix, Esq.

Cypripedium Charlesworthii rawdonense, from Messrs. Mansell and Hatcher.

FIRST-CLASS BOTANICAL CERTIFICATE.

Cymbidium lancifolium, from Mr. H. Arthur.

Vol. 3.

THE
ORCHID WORLD.

No. 3.

DECEMBER, 1912.

NOTES.

GHENT SHOW, 1913.—The 17th International Horticultural Exhibition of Ghent, Belgium, will be held Saturday, April 26th to Sunday, May 4th, 1913. At this important event Orchids will be particularly well shown, the schedule containing no less than 88 special classes for these plants. His Majesty the King of Belgium is offering a Large Gold Medal for the finest group of Orchids exhibited by an amateur, and Mons. Firmin Lambeau is giving a valuable Work of Art for the best trade exhibit. A very large number of other Prizes are mentioned in the schedule.



OBERONIA SPECIES.—At the meeting of the Linnean Society held November 7th, 1912, Mr. H. N. Ridley, F.R.S., read a paper on a collection of plants from Mount Menuang Gasing, Selangor. This mountain, 4,900 feet high, is the most southern high point of the great chain of the granite mountains which form the backbone of the peninsula. 143 species of plants were collected by Mr. Kloss, the most noteworthy being one, at present undescribed, which is probably the biggest species of the large genus *Oberonia*.



BIFURCATED DENDROBIUM.—An excellent example of bifurcation appears in the

pseudo-bulb of a Javanese *Dendrobium* of the phalænopsis section which has just been received from the collection of E. Baxter Cox, Esq., Adelaide, S. Australia. The upper part of the bulb gradually widens until two distinct stems appear, each one of which has the remaining portion of strong terminal flower spikes. The exact cause is somewhat difficult to determine, although it is not unlikely due to vigorous development. The bifurcation or dividing of an organ must not be confused with the union of parts which under normal circumstances are separate, for examples of the latter class are invariably due to arrest of development following an insufficiency of nutriment.



VANDA CÆRULEA ALBENS.—A recently imported plant of this elegant species has produced flowers which, although quite equal in size to the type, are very distinct in colour. The pure white sepals and petals have a very slight tinge of reddish-purple at their extreme points, the labellum having the usual tint of blue over its entire surface. These distinctive qualities appear to be permanent, and thus differ from those of the small type of whitish flowers often seen on plants which are undeveloped and insufficiently exposed to bright light. The subject of this note is a plant in the collection of Albert Gunn, Esq., Newport, Mon.

CATTLEYA HARDYANA VAR. MASSAIANA.—The original *C. Hardyana* was named in honour of Mr. Geo. Hardy, who first flowered this natural hybrid between *C. Warszewiczii* and *C. aurea* in the year 1883. In course of time other amateurs discovered specimens, one of which appeared in the Duc de Massa's collection, Luzarches, France, during the year 1888. It was illustrated in the *Orchid Album* as *C. Massaiana*, a natural hybrid with the same parentage as *C. Hardyana*. Bearing these facts in mind it is regrettable to notice that both names for this natural hybrid are being used with the idea of producing two distinct secondary hybrids. Thus, *C. Ena* (bicolor $\times$ Massaiana) has been erroneously certificated as a distinct plant to *C. Adula* (bicolor $\times$ Hardyana), when in reality it is one and the same thing. *C. Adula* first appeared September, 1905.



LÆLIA ANCEPS SALE.—The Mexican *Lælias* from the Rosefield collection were sold by auction by Messrs. Protheroe and Morris, October 25th, 1912. The following figures are of interest: *Lælia anceps* Crawshayana, £1 8s.; *L. a. Scottiana*, £1 6s.; *L. a. Mrs. de B. Crawshay*, £3 3s.; *L. a. Bull's alba*, £2 10s.; *L. a. Chamberlainiana*, £4 4s.; *L. Schröderæ Theodora*, £4 4s.; *L. S. Crawshayana*, £4 4s.; *L. S. Schröderiana*, £4 4s.; *L. Hollidayana waddoniensis*, £2 10s.; *L. H. Simondsii*, £3 13s. 6d.; *L. H. Theodora*, £2 5s.; *L. H. rosefieldiense*, £4 4s.; and *L. Dawsonii*, £1 17s. 6d.

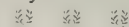


SEED RAISING.—Mons. Firmin Lambeau, in a recent number of *La Tribune Horticole*, criticises the necessity of using fungus for raising Orchid seeds, and remarks that *Cattleya* fungus is so scattered in our houses that seeds germinate under almost all conditions. *Cypripediums*, *Dendrobiums*, *Miltonias*, *Cymbidiums*, *Odontoglossums*, and even *Oncidiums* easily germinate on the surface of the compost in which plants of the same genus are growing. Other species, such as *Vandas*, *Phalænopses*, and similar plants, have only given good results on exceptional

occasions. Noel Bernard, during the last days of his life, was able to germinate *Vanda* seeds with certain facility, but the vigorous seedlings in the houses of M. Fernand Denis, at Bolaruch, were obtained without the use of this fungus, the method consisting in sowing the seeds in a very humid atmosphere and under complete aseptic conditions.



CATTLEYA COMET.—This elegant autumn flowering hybrid between *C. aurea* and *C. Warneri* first appeared in 1903, since when several distinct varieties have been seen. More recently, by the use of *C. Warneri alba*, still finer results have been obtained, one of the best being "Princess Mary," a beautiful example in the collection of Pantia Ralli, Esq., Ashted Park, Surrey, and of which an illustration is given on page 51. The creamy-white sepals and petals of the flower make a pleasing contrast to the broad, open labellum which is almost entirely bright golden-yellow. The question as to whether albino *Cattleyas* require treatment different to those of the purple-coloured section has more than once been raised, and it is not unlikely that their constitution may require some modification of the usual methods of culture now employed. However, Mr. S. Farnes, by whatever principle of treatment he adopts, obtained excellent flowers on the specimen of this *Cattleya* which received an Award of Merit, Royal Horticultural Society, October 22nd, 1912. The many rare and exceedingly choice specimens which have lately been added to the Ashted Park collection allow it to stand in the foremost rank of present-day Orchid gardens.



BUSH HILL PARK NURSERIES.—In our issue of November, when commenting on the Orchids at Bush Hill Park, the writer was in error regarding the continuity of the old firm of Hugh Low and Co. This we regret, for, as is well known, the firm of Hugh Low and Co. was dissolved by order of the Chancery Court in 1909, one of the terms of the order being that neither of the partners should have the right to claim to be the successor of that firm.



Cattleya Comet var. "*Princess Mary*."

A beautiful variety in the collection of Pantia Ralli, Esq., Ashted Park, Surrey.

ALBINISM IN ORCHIDS.*

By RICH'D. G. THWAITES.

IT is with feelings of considerable diffidence that I venture to bring forward for your consideration the subject of Albinism in Orchids, not only because the subject is a difficult one and contains points which are still very largely matters of opinion, but more particularly because I am unable to treat it from a scientific point of view.

I am further conscious that I am speaking before experts who have had considerable experience with albino Orchids, but bearing in mind that this meeting is a conference at which opinions and experiences are invited in order that sound conclusions may be formed I am merely taking my part in the same, hoping to be able to throw a little light upon the subject.

After considering the definition of albinism I propose to put before you the details of my experience with albino Orchids; the conclusions I have formed from such experience; and the reasons for such conclusions. These are offered in no dogmatic sense, but merely as opinions for your consideration.

Being desirous of raising white Orchids from seed, and having frequently obtained coloured flowers from the seedlings which I expected to flower white, I have turned to various writings upon the subject hoping to benefit by the knowledge and experience of others.

I find these writings consist mainly of records of results, principally amongst *Cypripediums*, obtained in various gardens, and theories put forward to account for the mysterious happenings which have taken place, not always under the writer's own observation.

I must confess that I have found some of these theories very difficult to follow, and have often been mystified rather than helped by them. For instance, I read: "It is now definitely established that the production of

colour depends upon two factors which must both occur in one plant before the flowers can become coloured. In the two white forms these factors were segregated, hence the absence of colour in the two plants, but when crossed, the two factors unite, and a coloured form results."

As I understand it, a white flower called A will mate with a white flower called B and produce white progeny, but when A is mated with a white flower called C coloured progeny are produced because the factor which is in A differs from the factor which is in C. Now if there is a factor in A and B which is not in C it follows that there are two whites, the component parts of which are different, notwithstanding that all three flowers are admittedly white, but I cannot find an explanation of how the component parts differ one from the other, or how the factor which is in A and B compares with the factor which is in C. There is nothing to distinguish these two whites by, except their mysterious results, and then only after years of waiting, when the results are self-evident.

Although this theory gives us only two whites, which to the eye are identical, there are also flowers admittedly white which to the eye are different. In the book "*Repertoire de Couleurs*" there is shown, amongst others, pure white, snow-white, milk-white, and cream-white, which when viewed side by side are distinct from each other, but when viewed separately each of them would pass as white, *but* as their component parts must differ, or we could not detect any difference, so must the factor which they each possess, and so we are faced with a complication which might unite not two but several factors.

Further, if the white flower A combines with the white flower B to produce another white flower and will also produce white with a white flower called D, then, if A and D are mated the progeny should still be white. Now if A, B, C, and D represent individual plants only the scope is very limited. If,

* Report of Paper read at the Orchid Conference, November, 1912.

however, they represent a class one foresees danger in making use of the theory.

Cattleya Trianae alba is notoriously inconstant, and the plant in one collection does not necessarily contain the same factor as the plant in another collection, unless it is a sub-division of the same plant.

Theories are sometimes formed upon the evidence of others, and in getting evidence together one has to rely upon the judgment of others, who, without the least intention of misleading, may record a flower as white which is not white. So much does the opinion as to what is white vary, that one sees plants in flower exhibited as white which are distinctly flushed with colour upon the sepals and petals.

One recognises, of course, that there must be factors, for without them there could be no products, but the suggestion that the whole range of whites in Orchids is covered by one of two factors appears to me to be hypothetical.

The theory that "an albino Orchid is distinguished from a coloured one by the absence of purple sap" is one which carries us beyond the sphere of *white* Orchids, and seems to have been propounded in order to account for the vagaries of *Cypripedium insigne* Sanderæ, *C. Lawrenceanum* Hyeaunum, etc., which have been classed as albinos.

This definition may serve a useful purpose in assisting the *Cypripedium* raiser, but as it includes yellows and greens it appears to me to cover too much ground to be useful to those raisers who are endeavouring to obtain white Orchids from seed.

When one contemplates mating one Orchid with another the mind looks forward and imagines that the colours one sees in the proposed parents will be so blended together as to produce in the flowers of the seedlings the same results as are produced by the blending of pigments in art, or the colours of the spectrum; and, in a broad sense, bearing in mind that some colours are more powerful than others, I believe that the same combination of colours takes place in Orchids.

The dictionary definition of white is "reflecting to the eye all the rays of the

spectrum combined," that is to say, "having all the constituent colours so blended that no colour is predominant," and I believe that this is the correct definition of the white in Orchid flowers.

Now whilst the perfect blending of all the colours of the spectrum produces perfect white, where the blending of the colours is not perfect a perfect white is not produced. The synthetic white of the Physics laboratory produced from pigments resembling all the colours of the spectrum, and combined, does not give perfect white. In the same way there are various whites in Orchid flowers, comparable to paper-white, snow-white, milk-white, and cream-white, each of which is distinguishable from the others.

Sir William Abdy, in a lecture at the Central Technical College, caused to be thrown upon a sheet, by means of a lantern, three superimposed photographic pictures projected through three coloured screens thereby obtaining a coloured picture upon the sheet. The white objects in the view which had been photographed were reproduced white upon the sheet notwithstanding that the light had passed through coloured screens; that is to say, white, not necessarily perfect, had been produced by means of colours.

Now considering that almost every Orchid known to us has a white variety there must be some logical reason for its existence, and if the perfect combination of colour produces white I think I am justified in concluding that it is the combination of colour which produces the white, more or less perfectly, in Orchid flowers.

This opinion seems to drive me still further away from the desired object of obtaining white Orchids from seed, because I can never hope to blend red, yellow, and blue flowers by crossing so perfectly as to produce white flowers. Experience, however, tells me that white can be built up by choosing purple flowers upon one side and yellow upon the other, and the fainter the purple colour is, not only do the flowers of the seedlings more nearly approach white, but the proportion of white over coloured flowers is greater.

The parents of the following examples contain purple on the one side and yellow upon the other, and the nearer these colours are to pure pale purple and pure yellow, the greater is the proportion of whites obtained.

Dendrobium Wiganianum xanthochilum crossed with *D. Thwaitesianum* produced flowers some with rose, some with violet, some with yellow, and some with white sepals and petals, showing that there were not only two but several factors involved.

The same results were obtained by crossing *Dendrobium Wiganianum xanthochilum* with *D. Rubens*, whilst from *D. Wiganianum* crossed with *D. Wiganianum xanthochilum* a number of the seedlings raised had either white or cream-white sepals and petals.

Dendrobium Findlayanum crossed with *D. Wiganianum* produced the same results, except that in the white varieties there was a faint trace of colour on the tips of the sepals and petals.

Cattleya Dowiana aurea crossed with *C. Trianae albens* produced *C. Maggie Raphael* with whitish sepals and petals in very large proportions.

I believe that all white Orchids in Nature are produced from colour, their scarcity being due to the rare chance of Nature selecting and blending the colours so as to produce white. So soon as one attempts to obtain white seedlings from white parents there is considerable disappointment. Whites mated together will sometimes produce white, but coloured flowers have frequently resulted.

The following parents have flowered white year after year, and have, without exception, produced white progeny:—

Dendrobium nobile virginale fertilised with its own pollen.

Cattleya labiata alba crossed with another *C. labiata alba*.

Cattleya Mossiae Wagneri fertilised with its own pollen.

Cattleya Mossiae Wagneri crossed with another *C. Mossiae Wagneri*.

Cattleya intermedia alba crossed with *C. Mossiae Wagneri*.

Laelia pumila alba fertilised with its own pollen.

I have never had white and coloured flowers from the same crossing of whites. The results have always been all white, or all coloured.

The following produced flushed flowers without exception:—

Dendrobium Wiganianum album crossed with *D. nobile virginale*.

Cattleya labiata Amesiana crossed with *C. labiata R. I. Measures*.

Cattleya Schröderæ alba crossed with *C. Mossiae Wagneri*.

Cattleya Gaskelliana alba crossed with *C. Harrisoniana alba*.

Cattleya Gaskelliana alba crossed with *C. Mendelii alba*.

All these crosses were made in the hope of obtaining white flowers. In the light of after experiences, however, the explanation of the disappointment appeared.

Although the *Cattleya Harrisoniana*, the *C. Mendelii*, and the *C. Schröderæ* were, so far as the eye was concerned, the true albinos of their class at the time they were used as parents, upon flowering them later all were seen to have a slight flush of colour, that is to say, they were not fixed whites; they had reverted towards their type. The *Dendrobium Wiganianum* was not a true albino in that it had two faint lines of colour in the throat, although it received an Award of Merit as *D. Wiganianum album*; and both the *Cattleya labiata Amesiana* and the *C. labiata R. I. Measures* had coloured lips.

As an instance that it is possible for a plant to flower white one year and coloured another, and to exonerate myself for allowing these failures to be recorded as failures to obtain white from white, I call your attention to the plant *Cattleya Trianae* Mrs. Edward Sondheim; the flowers of this when I first saw them were pure white, and, as such, received a First-class Certificate from the Royal Horticultural Society. The drawing, which was made of it at the time, shows it as a pure albino, but it has since flowered coloured. How, then, is one to account for this reversion towards the type?

I believe that the colours one sees in Orchid flowers are produced upon the surface

of the flower by the chemical action of light and air. The plant contains selected coloured sap which is drawn up through the stem to the bud, and is split up along the veins upon the surface of the flower. This sap, by the process known as ripening, is made more or less responsive to the action of oxidation by light and air, and the varying richness of the colours obtained in the flowers depends upon the amount of light and air admitted to the plant during the ripening period as well as the final stages of the flowers' development.

When a plant produces flowers of richer colours than previously we say "this is due to good cultivation," and so it is. The riper the plant, and the more light and pure air available for the cultivator's judicious use, the richer will be the colour sap, and the more noticeable will be the chemical change of the sap in the veins upon the surface of the flower.

A plant which has flowered white one year and slightly flushed the next may be made to flower white again by allowing the bud to open in the dark, and so preventing the light from producing a chemical change in the sap.

I believe that plants which flower white one year and flushed another year possess in themselves a small quantity of colour sap, which is observed in the colour of the flower *only* when sufficient oxidation has taken place. Only those plants which flower white year after year under good cultivation may be looked upon as "fixed," and these are the only safe plants to use for producing white progeny.

When albinos, so-called, will not intercross to produce white I would attribute the reason to one or both of the parents containing colour sap, and by the same reasoning I commit myself to the belief that all true albinos will intercross with their own class to produce white.

In closing this paper I would ask all those who are interested in Orchids to use their endeavours to stop the careless, misleading, and too frequent use of the word *alba* as applied to plants which have no right to the description. By this I do not merely mean flowers with coloured lips, but I particularly

refer to those flowers which are distinctly flushed with colour on the sepals and petals, and are still labelled *alba*.

The recording of such plants as white not only creates considerable difficulty in arriving at logical conclusions, but is particularly unfair to those who must have accurate data from which to work, and who, by their writings, are endeavouring to assist the raiser.

NEW HYBRIDS.

CYPRIPEDIUM TRACERY.—A charming little hybrid between *Psyche* (*niveum* × *bellatulum*) and *Fairrieanum* has been raised by Mr. F. C. Puddle in the Scampston Hall Gardens, Rillington, York. The porcelain-white flower is prettily covered with fine rose-purple tracery having an inclination to arrange itself in lineal fashion.

LÆLIO-CATTLEYA THYONE.—By crossing *L.-C. Ophir* (*xanthina* × *aurea*) with *C. aurea* a further addition to the yellow-flowering section has been produced. The additional influence of *aurea* has resulted in a fairly large golden-yellow flower of good substance and of special value for future hybridising purposes. This hybrid has recently flowered in the Ashted Park collection, from whence a bloom has been sent by Mr. Farnes.

ODONTOGLOSSUM SCINTILLANS.—This pretty hybrid between *Rossii rubescens* and *Wilckeanum* was exhibited at the Manchester Orchid Society, October 17th, 1912, by Mr. Wm. Thompson, of Stone. The flower resembles *Od. Fowlerianum* (*Rossii* × *cirrhosum*) in the sparsely spotted nature of the sepals. The effect of *luteopurpureum*, derived through the *Wilckeanum* parent, may be seen in the somewhat elongated segments and the brownish tinge of the spotting.

CATTLEYA MAD. CHARLIER.—As a useful autumn flowering hybrid this cross between *Mantini* and *labiata* would be difficult to equal. The rich colouring of the former parent, composed of *Bowringiana* and *aurea*, adds considerable beauty to the large flower of *labiata*. Raised in the collection of Mons.

Firmin Lambeau and exhibited at Brussels, October 20th, 1912, when it was unanimously awarded a Certificate of Merit.

CATTLEYA OBERON.—A useful and elegant autumn flowering hybrid between *C. Fabia* and *C. Hardyana*. A very pretty and distinctly marked variety was shown by Mr. E. R. Ashton at the Royal Horticultural Society, November 5th, 1912.

CATTLEYA MÜLLERI.—In this addition to the albino section we have a beautiful hybrid resulting from *C. Mrs. Myra Peeters* (*Gaskelliana alba* × *Warneri alba*) × *C. intermedia alba*. The stiff, erect flowers are of good substance and pure white. Shown by Messrs. Sander and Sons, Royal Horticultural Society, November 5th, 1912.

LÆLIO-CATTLEYA MISS LOCKE.—Raised in the Brockhurst collection, this hybrid between *C. Mantinii* and *L.-C. Isis* (*pumila* × *Marstersoniæ*) has parentage likely to give very varying results. The first seedling to flower inherits much of the *Mantinii* shape and colour.

ONCIDIODA MARJORIE.—By crossing *C. Noezliana* with *On. Forbesii*, Messrs. Charlesworth have produced an interesting hybrid with reddish-buff coloured flowers having a yellowish-buff tint on the apex of the labellum. Four other *Oncidiodas* are known: *Charlesworthii* (*C. N.* × *O. incurvum*), *cinnabarina* (*O. monachicum* × *C. N.*), *Cybele* (*O. sarcodes* × *C. N.*), and *Penelope* (*C. N.* × *O. leucochilum*).

NOMENCLATURE OF CYPRIPEDIUMS.

YOUR article urging greater simplification of nomenclature in Orchids will be read with interest by amateurs, and, at the same time, will provoke criticism.

The basis for the suggestion of the new system of naming seems to be that all Orchids, nominative *Cypripediums*, inheriting the same parents shall receive the same name. If these varieties contained the same parents in equal degrees no one would dispute the advisability of this process; but if in unequal

degrees then neither advisedly nor scientifically may one ascribe to them a common name.

Take, for example, the varieties *aureum*, *Leander*, and *dellense* cited for a common name of *aureum* because they each contain *insigne*, *villosum*, and *Spicerianum*. Analyse the three:—

Aureum=(*insigne* × *villosum*) × *Spicerianum*; *i.e.*, *aureum* is half a *Spicerianum*, because this species is half of the parentage; so that *aureum* consists of one part *insigne*, one part *villosum*, and two parts *Spicerianum*.

Leander=(*insigne* × *Spicerianum*) × *villosum*; *i.e.*, one part *insigne*, one part *Spicerianum*, and two parts *villosum* as representing half the parentage.

Dellense=(*villosum* × *Spicerianum*) × *insigne*; *i.e.*, one part *villosum*, one part *Spicerianum*, and two parts *insigne*.

Could all these three hybrids be called *aureum*? Pursue the idea a little further. Cross *aureum* with *insigne* and an analysis of the hybrid will give one part *villosum*, two parts *Spicerianum*, and five parts *insigne*. Cross this hybrid again with *insigne* and a hybrid will be produced containing one part *villosum*, two parts *Spicerianum*, and twelve parts *insigne*; yet it shall be called an *aureum*.

If instead of crossing *aureum* twice with *insigne* it be crossed twice with *Spicerianum* a hybrid is obtained having one part *villosum*, one part *insigne*, and fourteen parts *Spicerianum*. This also shall be called an *aureum*. Thus there will be one *aureum* containing 12/16ths *insigne*, and another hybrid containing 14/16ths *Spicerianum*.

Would not such a system be illogical and unscientific. The only way out of the difficulty is to call all hybrid *Cypripediums* by florist's names, and let the Orchid Committees issue from time to time a list of varieties that they consider synonymous, as does the National Rose Society.

Besides, a lot of made-up parentages are afloat!

JOHN CROMBLEHOLME.

St. Mary's, Clayton-le-Moors.

THE APPLICATION OF GENETICS TO ORCHID BREEDING.*

By MAJOR C. C. HURST, F.L.S.

(Director of the Burbage Experiment Station.)

THE new Science of Genetics has been built up during the past decade on the firm foundations laid by Mendel nearly 50 years ago. The Royal Horticultural Society, through its far-seeing secretary, the Rev. W. Wilks, took a leading part in the introduction of Mendel's work to English readers some 10 years ago, and in the meantime the Society has in many ways helped to advance the new Science of Genetics.

The word genetics was first used by Professor Bateson at the time of the International Hybridisation Conference held by the Royal Horticultural Society in London in 1906, and was used by him as a convenient word to express the modern science of breeding on Mendelian lines. Technically, the word genetics covers not only the primary principles of heredity, as understood and expounded by Mendel himself, but also all the secondary developments of Mendelism that have taken place during the past decade in consequence of the experiments and observations of Mendelians in all parts of the world, not only with cultivated plants, but also with domesticated animals including man himself.

Perhaps the most remarkable feature in the progress of the modern Science of Genetics is the extraordinary way in which experiments with plants have led to the solution of important problems in animal breeding, while, on the other hand, experiments with animals have in their turn led to the solution of many difficulties in plant breeding. As experiment follows experiment, and discovery succeeds discovery, the word "genetics" will still cover the ground, and its influence and utility will become increasingly marked as time rolls on.

Orchids are truly regarded as the aristocrats of the plant world, and the results achieved by Orchid breeders during the past 20 years constitute one of the seven wonders of the world of horticulture. No other natural order of cultivated plants has yielded so many beautiful hybrids in so short a time as the Orchidaceæ. At least 40 genera and 300 distinct species have been already utilised by Orchid breeders in the making of their hybrids. About 2,000 of these are primary hybrids, while no less than 300 are generic hybrids. Besides these botanical hybrids there are on record some thousands of horticultural secondary, tertiary and multiple hybrids, to say nothing of multitudinous varietal and individual forms which no man can number.

When one remembers that most of these remarkable results have been achieved in less than a generation (one might almost say, since the last Orchid Conference was held here), and that the raising of such delicate exotics from seed, under purely artificial conditions, is by no means an easy matter even for the expert, one cannot but admire the practical genius of British and Continental Orchid breeders that has brought about such a consummation. Those who had the good fortune to see the remarkable display of Orchids at the International Exhibition at Chelsea last May, must have been impressed by the leading part played by hand-raised hybrids in the various groups.

In face of such an imposing array of beautiful hybrids, it may seem presumptuous on the part of a student of genetics to offer to the Orchid breeder any suggestions as to the advantages that might be derived from an application of the Science of Genetics to Orchid breeding, for where practical Orchid breeding has been so successful the application of the Science of Genetics might

*Abstract from the Paper read at the Orchid Conference, November, 1912.

naturally be regarded as somewhat superfluous. But those behind the scenes know better. The wonderful hybrids that appear in public represent only one side of the picture.

Orchid breeders of experience know too well that in order to secure a really first-class hybrid it is necessary to raise large numbers of others. Many are called, but few are chosen. Some crosses naturally yield more good forms than others, but, generally speaking, first-class hybrids are few and far between, and the moderate and poor forms are far too numerous. In secondary and more complex hybrids especially, the numbers of misfits and unwanted weeds that turn up time after time is rather disconcerting, and the question often arises as to whether many of these crosses are worth making at all from the economic point of view, though from the scientific standpoint they are naturally most instructive.

From this it is evident that chance plays a great part in modern Orchid breeding, and there is really very little certainty in the game as played by the leading exponents. Now if the modern Science of Genetics teaches anything, it is that there are *certainities* to be found in breeding. A careful study of recent work in genetics points unmistakably to the important fact that law and order may be perceived in breeding. From the economic point of view it costs just as much to raise a poor form as it does a good one, the time, trouble and expense involved are the same, and the practical problem that faces the Orchid breeder is how to manage his matings so as to reduce the number of worthless forms to a minimum.

This is where the application of genetics to Orchid breeding should come in to help the breeder. Of course, in the early stages of the application it cannot be expected that all Orchid breeding will be reduced to a certainty, that would be too much to expect, nor would it be altogether desirable, for in such a case Orchid breeding would be divested of much of its charm. Already a few certainties in Orchid breeding are known, thanks mainly to the application of the Mendelian principles,

and that many other certainties await discovery there can be no doubt.

One important point, however, should be noted, and that is, that under present conditions Orchid breeders must very largely discover these certainties for themselves by the application of the principles of genetics. In this respect Orchid breeding differs much from ordinary plant breeding. The Orchid field is so wide, the conditions so difficult, and the complications so numerous, that only a practical expert can carry out the necessary experiments, and even he must have considerable resources of capital and experience at his command.

In order to apply genetics to Orchid breeding it will be necessary for the Orchid breeder to make himself familiar with the first principles. These principles are now universally accepted by all serious students of heredity who have experimented for themselves, and they can be applied equally to all kinds of plants and animals including man himself. From the practical point of view, it will not be necessary for the Orchid breeder, at the outset at all events, to venture much beyond these first principles. His own experiments, if based on these principles and carefully carried out, will soon yield a harvest of valuable data that will lead him on to more advanced work and to a deeper insight into the possibilities and certainties of Orchid breeding.

FIRST PRINCIPLES OF GENETICS.

Each plant or animal is composed of many characters, most of which are heritable.

Each heritable character is represented in the germ-cells by one or more factors.

In the fertilised cell, or zygote, each factor is present either in a double state or a single state.

When a double dose of the factor is present, the plant or animal is called homozygous, or pure, in regard to that factor.

When a single dose of the factor is present, the plant or animal is called heterozygous, or impure, in regard to that factor.

When the factor is altogether absent, the plant or animal may be called zerozygous, or wanting, in regard to that factor.

Previous to fertilisation the germ-cells divide and segregation takes place in regard to each factor.

Each cell with a double dose of the factor becomes two fertilising cells, or gametes, each with a single dose of the factor.

Each cell with a single dose of the factor becomes two fertilising cells, or gametes, one of which has a single dose of the factor and the other has none.

Fertilisation consists in the union of two fertilising cells, or gametes, a pollen or sperm-cell from the male uniting with an egg-cell from the female.

If both paternal and maternal gametes have a single dose of the factor, a zygote will be formed with a double dose of the factor, and the plant or animal will be homozygous, or pure, in regard to that factor.

If, however, one of the gametes has a single dose of the factor and the other has none, a zygote will be formed with a single dose of the factor, and the plant or animal will be heterozygous, or impure, in regard to that factor.

If neither of the gametes has the factor at all, it will, of course, be altogether absent from the zygote, and the plant will be zerozygous, or wanting, in regard to that factor.

PRACTICAL CONSEQUENCES.

The practical consequences of these first principles of genetics are that, as regards any one heritable character represented by a factor, there are three distinct kinds of individual plants: (1) homozygous, or pure; (2) heterozygous, or impure; and (3) zerozygous, or wanting. Each of these three kinds of individuals will give a different result when bred from. With regard to outward appearances, No. 3 will, of course, be easily distinguishable from Nos. 1 and 2, representing, as it usually does, the hypostatic or recessive form from which the epistatic or dominant character is quite absent.

If, as sometimes happens, a single dose of

the dominant factor produces the same effect in the zygote as a double dose, we get the phenomenon of complete dominance, and in such cases Nos. 1 and 2 are indistinguishable in outward appearance, and their homozygous or heterozygous nature can only be determined by breeding from them.

If, however, as often happens in Orchids, a single dose of the dominant factor produces a different effect in the zygote from a double dose, we get the phenomenon of incomplete dominance, in such cases Nos. 1 and 2 are distinguishable in outward appearance, and their homozygous or heterozygous nature is determined at sight without breeding from them.

The apparent blending of characters observed in many Orchid hybrids is no doubt due to the effect of the single dose of one factor reacting on the effect of a single dose of another factor, resulting in a mosaic.

When more than one heritable character is involved in the breeding problem, as usually happens in Orchids, the different kinds of individual plants become exceedingly numerous. One plant, for instance, may be homozygous for one character, heterozygous for another, and zerozygous for a third character, and so on. Each individual plant, however, has a definite germinal or gametic constitution, which can be ascertained by cross-breeding it with other plants. In this way a factorial analysis of the plant can be made, and as regards each heritable character the plant will be found to be either homozygous, heterozygous, or zerozygous, and as such it will behave when bred from. Once the factorial analysis of a plant has been made, all future breeding from that plant is reduced practically to a certainty.

COLOUR AND ALBINISM.

Recent results show that in certain cases an apparently simple heritable character is due to the presence of more than one distinct factor. For instance, in Orchids we have already one case of that description, and no doubt there are many more yet undiscovered. From evidence collected by the writer some

years ago, there can be no doubt that the rosy-purple colour present in the flowers and leaves of the various species of *Cattleya* and *Cypripedium* is due to the simultaneous presence of two complementary colour factors which we call C and R. If one or both of these factors is absent, the result is a true albino, with no trace of purple sap in the flowers and leaves. This purple colour can only be produced when the two factors C and R are both present.

Now as we have just seen, the colour factors C and R may be present in a double state, CC and RR, or in a single state, Cc and Rr, or they may be absent altogether, cc and rr; consequently no less than five different kinds of albinos may exist, as follows:—

- | | |
|----------|----------|
| (1) CCrr | (3) ccRR |
| (2) Ccrr | (4) ccRr |
| | (5) ccrr |

For the sake of convenience, it is usual in genetics to represent the presence of a factor by a capital letter and its absence by a small one.

These five albinos may be absolutely identical in appearance and outward characters, yet each has a different germinal constitution, and consequently will give different results in breeding. Each of these five albinos will breed true to albinism when selfed, but when they are crossed *inter se* different results will be obtained. Thus, out of the 15 possible matings 11 will give all albinos; 2 will give on the average equal numbers of albinos and coloured forms; 1 will give 1 coloured form to 3 albinos; and 1 will give all coloured forms.

Table I. gives the factorial details of these 15 matings, showing how the above calculations have been made.

TABLE I. (ALBINO MATINGS.)

Parents.	Offspring.	Result.
(1) CCrr × (1) CCrr	all CCrr	all Albinos
(1) CCrr × (2) Ccrr	1 CCrr: 1 Ccrr	all Albinos
(1) CCrr × (3) ccRR	all CcRr	all Coloured
(1) CCrr × (4) ccRr	1 CcRr: 1 Ccrr	1 Coloured: 1 Albino
(1) CCrr × (5) ccrr	all Ccrr	all Albinos
(2) Ccrr × (2) Ccrr	1 CCrr: 2 Ccrr: 1 ccrr	all Albinos
(2) Ccrr × (3) ccRR	1 CcRr: 1 ccRr	1 Coloured: 1 Albino

Parents.	Offspring.	Result.
(2) Ccrr × (4) ccRr	1 CcRr: 1 ccRr: 1 Ccrr: 1 ccrr	1 Coloured: 3 Albinos
(2) Ccrr × (5) ccrr	1 Ccrr: 1 ccrr	all Albinos
(3) ccRR × (3) ccRR	all ccRR	all Albinos
(3) ccRR × (4) ccRr	1 ccRR: 1 ccRr	all Albinos
(3) ccRR × (5) ccrr	all ccRr	all Albinos
(4) ccRr × (4) ccRr	1 ccRR: 2 CcRr: 1 ccrr	all Albinos
(4) ccRr × (5) ccrr	1 ccRr: 1 ccrr	all Albinos
(5) ccrr × (5) ccrr	all ccrr	all Albinos

C represents 1st colour factor.

R represents 2nd colour factor.

CC and RR represent double presence of factors C and R, *i.e.*, homozygous, or pure.

Cc and Rr represent single presence of factors C and R, *i.e.*, heterozygous, or impure.

cc and rr represent absence of factors C and R, *i.e.*, zerozygous, or lacking.

The same scheme, of course, applies equally to coloured forms as to albinos. Thus, four distinct kinds of coloured forms are possible, viz.:—

- | | |
|----------|----------|
| (a) CCRR | (c) CcRR |
| (b) CCRr | (d) CcRr |

These four coloured forms may be absolutely identical in appearance and outward characters, yet each has a different germinal constitution and consequently will give different results in breeding. Of the 10 possible matings 5 will give *all* coloured forms; 4 will give on the average 3 coloured forms to 1 albino; and 1 will give on the average 9 coloured forms to 7 albinos.

Table II. gives the factorial details of these matings, showing how the above calculations have been made.

TABLE II. (COLOURED MATINGS.)

Parents.	Offspring.	Result.
(a) CCRR × (a) CCRR	all CCRR	all Coloured
(a) CCRR × (b) CCRr	1 CCRR: 1 CCRr	all Coloured
(a) CCRR × (c) CcRR	1 CCRR: 1 CcRR	all Coloured
(a) CCRR × (d) CcRr	1 CCRR: 1 CcRr: 1 CcRR: 1 Ccrr	all Coloured
(b) CCRr × (b) CCRr	1 CCRR: 2 CCRr: 1 Ccrr	3 Coloured: 1 Albino
(b) CCRr × (c) CcRR	1 CCRR: 1 CcRR: 1 CcRr: 1 Ccrr	all Coloured
(b) CCRr × (d) CcRr	1 CCRR: 1 CcRR: 2 CcRr: 2 Ccrr	6 Coloured: 2 Albinos
(c) CcRR × (c) CcRR	1 CCRR: 2 CcRR: 1 ccRR	3 Coloured: 1 Albino
(c) CcRR × (d) CcRr	1 CCRR: 1 CcRR: 2 CcRR: 2 Ccrr: 1 ccRR: 1 ccrr	6 Coloured: 2 Albinos
(d) CcRr × (d) CcRr	1 CCRR: 2 CcRR: 1 ccRR: 2 Ccrr: 4 CcRr: 2 ccRr: 1 ccrr	9 Coloured: 7 Albinos

Further interesting results will be obtained by mating the four coloured forms with the five albino forms.

Of the 20 possible matings 7 will give *all* coloured forms; 8 will give on the average equal numbers of coloured and albino forms; 2 will give 3 coloured forms to 5 albinos; 2 will give 3 coloured forms to 1 albino; and 1 will give 1 coloured form to 3 albinos.

Table III. gives the factorial details of these matings, showing how the above calculations have been made.

TABLE III. (COLOURED $\times$ ALBINOS.)

Parents.	Offspring.	Result.
(a) CCRR $\times$ (1) CCrr	all CCRR	all Coloured
(a) CCRR $\times$ (2) Ccrr	1 CCRR: 1 Ccrr	all Coloured
(a) CCRR $\times$ (3) ccRR	all CcRR	all Coloured
(a) CCRR $\times$ (4) ccRr	1 CcRR: 1 CcRr	all Coloured
(a) CCRR $\times$ (5) ccrr	all CcRr	all Coloured
(b) CCRr $\times$ (1) CCrr	1 CCRr: 1 CCrr	1 Coloured: 1 Albino
(b) CCRr $\times$ (2) Ccrr	1 CCRr: 1 CCrr 1 CcRr: 1 Ccrr	2 Coloured: 2 Albinos
(b) CCRr $\times$ (3) ccRR	1 CcRR: 1 CcRr	all Coloured
(b) CCRr $\times$ (4) ccRr	1 CcRR: 2 CcRr 1 Ccrr	3 Coloured: 1 Albino
(b) CCRr $\times$ (5) ccrr	1 CcRr: 1 Ccrr	1 Coloured: 1 Albino
(c) CcRR $\times$ (1) CCrr	1 CCRr: 1 CcRr	all Coloured
(c) CcRR $\times$ (2) Ccrr	1 CCRr: 2 CcRr 1 ccRr	3 Coloured: 1 Albino
(c) CcRR $\times$ (3) ccRR	1 CcRR: 1 ccRR	1 Coloured: 1 Albino
(c) CcRR $\times$ (4) ccRr	1 CcRR: 1 CcRr 1 ccRR: 1 ccRr	2 Coloured: 2 Albinos
(c) CcRR $\times$ (5) ccrr	1 CcRr: 1 ccRr	1 Coloured: 1 Albino
(d) CcRr $\times$ (1) CCrr	1 CCRr: 1 CCrr 1 CcRr: 1 Ccrr	2 Coloured: 2 Albinos
(d) CcRr $\times$ (2) Ccrr	1 CCRr: 1 CCrr 2 CcRr: 2 Ccrr 1 ccRr: 1 ccrr	3 Coloured: 5 Albinos
(d) CcRr $\times$ (3) ccRR	1 CcRR: 1 CcRr 1 ccRR: 1 ccRr	2 Coloured: 2 Albinos
(d) CcRr $\times$ (4) ccRr	1 CcRR: 1 ccRR 2 CcRr: 2 ccRr 1 Ccrr: 1 ccrr	3 Coloured: 5 Albinos
(d) CcRr $\times$ (5) ccrr	1 CcRr: 1 Ccrr 1 ccRr: 1 ccrr	1 Coloured: 3 Albinos

IDENTIFICATION OF INDIVIDUAL STUD PLANTS

The practical consequences of these first principles are important and far reaching from the Orchid breeder's point of view.

If each individual plant grown from a seed has a definite germinal constitution which determines its breeding powers and potentialities, then it is necessary that each

individual plant used as a parent should have an identification mark. Whether this identification mark consists of an individual name, a stud number, or anything else, is simply a matter of convenience, so long as the identity of each stud individual is maintained for future use. In 1909 the writer suggested that identification might be assured by putting the name of the importer or raiser in brackets after the ordinary name together with a number showing the order of its appearance, *e.g.*, *Cypripedium callosum* Sanderæ (Sander 1), (Low 1), (Cookson 1), (Statter 1), and so forth. The first was imported in 1894, the second in 1904, and the third and fourth were raised by hand, presumably from the first. All divisions of the original plant would, of course, have the same germinal constitution, and would consequently bear the same identification mark.

There is no doubt that in course of time certain individual plants would acquire a stud reputation much in the same way as a noted sire or brood mare does in thoroughbred horses, and the propagation of such an individual Orchid by division, and its distribution, would become a valuable economic asset.

Having secured the identification of each individual stud plant, the next step is to ascertain their germinal constitution by breeding from them. The original Mendelian method was to self them, but recent results show that this method alone is not sufficient to give a complete analysis of the germinal constitution of a plant. In order to do this it is necessary to cross-breed them, and in cases like albinism, for instance, this is the only method possible. From this it is evident that the ordinary experiments in hybridisation and cross-breeding made by Orchid breeders are precisely what we require in order to ascertain the germinal constitution of individual plants, provided that each individual plant used as a parent is carefully identified for future reference and use.

SELF STERILITY IN ORCHIDS.

The question of selfing Orchids leads us to

another point which may be of some interest. Records of the flowering of seedlings from selfed hybrids are exceedingly rare in Orchids. At one time the writer thought that this might be due, on the one hand, to the practical prejudice against in-breeding, or, on the other hand, to the idea that nothing new might be expected from selfing. Now, however, after attempting to self several hundreds of different flowers of *Cypripedium* and other hybrids during the past ten years, the writer has come to the conclusion that self-sterility in hybrid Orchids has to be reckoned with, being apparently the rule rather than the exception. For instance, since publishing my Mendelian experiments with *Cypripedium Hera* in 1903, I have from time to time endeavoured to self the individual F_2 hybrids as they flowered, but in every case but one, when the pods formed, they afterwards proved to be empty. A few seeds, however, were secured from one pod of selfed *C. Hera punctatissimum* and a single F_3 plant has flowered which bred true to its spotted parent in so far as the spotted character was concerned.

On the other hand, Mr. R. A. Rolfe has obtained a number of seedlings at Kew of selfed *Epidendrum kewense*, several of which have flowered, and other odd records are to be found during the past twenty years where selfed Orchid hybrids have produced plants which have flowered. These cases, however, would appear to be exceptional.

In 1898 the writer showed that sterility in hybrid *Cypripediums* was due in certain cases to a loss of power in the pollen of hybrids. For instance, species $\times$ species produced 95 per cent. of fertile pods, while species $\times$ hybrids gave only 56 per cent.; again, hybrids $\times$ species produced 89 per cent., while hybrids $\times$ hybrids gave only 59 per cent. It is possible that the same cause may be concerned in the self sterility of Orchid hybrids generally, plus some other factor unknown.

Whatever difficulties may be met with in selfing hybrid Orchids, no such difficulty is apparently encountered in selfing species and varieties. I have found no difficulty in raising seedlings of selfed species and varieties of

Cypripedium, and many records are to be found in this and in other genera in Orchid literature. In view, however, of the great successes achieved by Orchid breeders in the hybridisation of diverse species and genera, it is hardly likely that selfing will be resorted to now to any great extent, either in species or hybrids.

As we have seen, cross-breeding is a far more effective method of analysis than selfing, even from the point of view of genetics. The crux of the whole problem, however, lies in the identification of individual plants. Unless this is done all the rest is vain. Unfortunately, with a few brilliant exceptions, our multitudinous Orchid records and labels are almost useless for this purpose. Some of these brilliant exceptions consist of certain unique hybrids to which their owners gave a distinctive name, proudly refusing to conform to the technical rules laid down by the authorities in nomenclature (and by the irony of fate the writer happened to be one of the latter). Many of these names can be traced in the Orchid Stud Book as synonyms, and it is possible that the natural conservatism of Orchid breeders has caused them to retain many of these old names on their labels. If such is the case, the identification of some of our best stud individuals may not be so difficult after all.

In most cases, however, the adoption of genetic methods will necessitate the making over again of the best hybrids, using as parents the best individuals of the best varieties of the best species of the best genera. The primary hybrids thus obtained would be pedigree hybrids, and the best individuals of these might be further utilised in accordance with the particular aims that the breeder may have in view. In this way the Orchid breeder would be able to build up a pedigree strain made up of superior individuals, and the reversions and recombinations that he would obtain among the secondary hybrids would also tend to be superior to those bred in the ordinary way.

In breeding on these lines the Orchid breeder will soon discover for himself that while a few stud individuals are homozygous,

or pure, for the good qualities required, the majority will be heterozygous, or impure, for those particular characters. For stud purposes these heterozygous, or impure, forms should be discarded at once, no matter how good-looking they may be, and only the homozygous, or pure, forms should be used for future breeding. Should the homozygous, or pure, forms not turn up quickly enough for his purpose, the breeder can always make them from the heterozygous, or impure, forms in the ordinary Mendelian way. In many cases no doubt this will be well worth doing.

This rigorous elimination of the heterozygous plants that throw unwanted forms may sometimes require considerable courage on the part of the Orchid breeder, involving, as it does, the sacrifice of certain prejudices and predilections, especially when it comes to the point of discarding for stud purposes a much-prized plant that has, perhaps, won the classic F.C.C. at the R.H.S. The Science of Genetics tells us plainly that things are not always what they seem, and a good-looking plant is not always a good plant to breed from. Only a few Derby winners are successful at the stud, everything depends on their germinal constitution. From the genetic point of view, it would be a far sounder proposition to use for breeding an individual Orchid that had *bred* an F.C.C. winner, than to use an actual winner of the F.C.C. that had no breeding record.

The F.C.C. awarded by the Orchid Committee of the R.H.S. is universally acknowledged to be the highest prize in the Orchid world, and winners of this prize may be regarded as classic Orchids. From the point of view of genetics, the individual parents of these classic winners deserve special recognition as stud Orchids.

A reference to the records shows that during the past three years 118 F.C.C.'s have been awarded by the Orchid Committee of the R.H.S. Of these F.C.C. winners 87 appear to be hand-raised hybrids. Of the 174 parents of these hybrids only 31 can be identified from the records as individual plants, and it is quite possible that a few of these

names even may be represented in collections by more than one seedling individual.

May I venture to suggest that special groups made up of these stud Orchids and their progeny would provide an exhibit at the R.H.S. shows that would not only be interesting to Orchid growers generally, but would be particularly useful to Orchid breeders as a demonstration of the germinal constitution of these stud Orchids. Competitive classes might even be arranged for these progeny tests, to decide which individual Orchids are best for stud purposes.

The result would be to create a special demand for high-priced stud Orchids that does not exist to-day. In view of the increasing numbers of Orchid growers all over the world, it is hardly likely that such a demand would be confined to the British Isles, and there is no reason why this country should not in the future provide the world with stud Orchids as it does to-day with thoroughbred horses and pedigree animals generally.

So far we have dealt with the general application of the principles of genetics to Orchid breeding. It may be useful now to put the matter into a somewhat more concrete form by suggesting, briefly, a few special possibilities of the practical application of genetics to Orchid breeding.

THE BREEDING OF ALBINOS.

The beauty and value of albino Orchids is generally recognised, and the Orchid breeder naturally wishes to raise new and improved forms by hybridisation. In other words, he wishes to vary the shape and size of the flower while retaining the chaste beauty of the true albino. So far as we know, all albino Orchids breed true to albinism when selfed, but no remarkable improvement in shape, size and distinctness can be obtained in this way. On the other hand, as we have already seen, when different species of albinos are crossed they do not always breed true to albinism, but often give coloured forms which are not wanted by the Orchid breeder.

The Science of Genetics has provided a reasonable explanation of these interesting

results. Experiments are yet wanting to provide breeders with a complete analysis of the germinal constitution of all the well-known albinos, and this cannot be satisfactorily accomplished until we can be quite certain as to the identification of individual albino plants, and, more important still, that the albinos concerned are true albinos.

In working with albinos Orchid breeders must be careful to distinguish between true albinos and false albinos. True albinos have pure white flowers and green leaves without a trace of purple sap-colour, though yellow plastids are usually present in the flowers. As we have seen, one or both of the colour factors C and R are absent in the germ-cells of these forms. On the other hand, false albinos, like *Cypripedium insigne* Sanderæ, *C. Lawrenceanum* Gratrixianum, *Cattleya Mossiæ* Reineckiana, and others, have a certain amount of purple sap-colour in the flowers and leaves, and, consequently, are not true albinos, though for practical purposes they are usually called "albinos," and in many cases are quite as beautiful and as much sought after as the true albinos. In these false albinos both the colour factors C and R are present in the germ-cells, and consequently they give quite different results in breeding from the true albinos. These false albinos are really dilute coloured forms, and the fact that they usually behave as Mendelian recessives in breeding shows that their condition is due to the absence of a factor for dense or full coloration, which factor is present in the typical coloured form.

The different kinds of dilution found in most species suggest that more than one factor is concerned in the typical dense form. This application of genetics to Orchid breeding explains a good many apparent mysteries. For instance, it explains why the false albino *Cypripedium insigne* Sanderæ breeds true to its special dilute form or throws true albinos when selfed, and yet behaves as if it were an ordinary *C. insigne* when crossed with the true albinos *C. Maudii*, *C. Lawrenceanum* Hyeaenum and *C. callosum* Sanderæ. These true albinos arose originally by the loss of a colour factor (C), but the factor

for dense coloration (D) would still be present in those albinos though not manifested on account of the albinism. When this factor for dense coloration (D) is brought in by the cross it naturally causes the parent *C. insigne* Sanderæ to behave as if it were an ordinary *C. insigne*.

If these so-called "reversionary" forms were to be self fertilised or crossed *inter se*, both the recessive dilute coloration (dd) and the albinism (cc) would appear in certain individuals. On the average the dilute forms would be expected to appear in three out of sixteen plants, and the albino forms in four out of sixteen plants. The recent cases reported in which the true albino *Cypripedium Lawrenceanum* Hyeaenum crossed with the false albino *C. niveum* gave typical coloured plants of *C. Aphrodite*, and in which the false albino *C. niveum* crossed with the false albino *C. Lawrenceanum* Gratrixianum gave the false albino *C. Antigone* album are, of course, easily explained in the same way.

(To be continued.)

BRUSSELS SHOW.

At the recent Orchid Show held in the Salle de la Madeline, Brussels, Mons. F. Lambeau obtained a Gold Medal, value 300 fr., for the best group of species and hybrids, and a Silver-gilt Medal for the best hybrid; Mons. Ch. Dietrich received a Gold Medal for the finest 100 Orchids, and a Diploma of Merit for the best single specimen; Mons. Jules Hye de Crom was awarded a Silver-gilt Medal for some very fine *Cattleya* hybrids; Mons. Th. Pauwels and Co. obtained a Gold Medal for a large group of Orchids, and a similar prize for the best 25 species; Messrs. Duchesne and Lanthoine received a Gold Medal for an extensive group; Messrs. Peeters and Sons were awarded a Gold Medal for a fine group of *Cattleyas*; Messrs. Charlesworth and Co. received a Silver-gilt Medal for an interesting group; Mons. Ch. Maron was awarded a Silver-gilt Medal for the best group of 20 plants, and a similar award for a collection of white *Cattleyas*.

CALENDAR OF OPERATIONS FOR DECEMBER.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

IN the cultivation of Orchids an abundance of light is indispensable to their well-being. We have now arrived at that season of the year when the least amount is available, and, therefore, it becomes necessary to utilise to the best advantage all that we get. Those who have the good fortune to be located in a pure country district, far away from any large manufacturing town, have a decided advantage over those who are placed in close contact with such places.

Daylight being of very short duration at the present time, and in smoky districts a very scarce commodity, it is necessary to keep the roof glass of the houses clean, in order to get all the light available. The temperatures of all the divisions should now reach their lowest point, and every inducement should be given the plants to rest; much harm may accrue from either too much or too little heat. The temperatures given in the January calendar should be strictly adhered to, with but little variation.

Watering and ventilation. The remarks made last month regarding these two essentials should have every care and attention; it is obvious that if these conditions are not satisfactory the plants must suffer and begin to go on a downward grade. These two details of cultivation cannot have too much thought and attention bestowed upon them during the dull days of winter.

This is the season of the year when drip may do irreparable harm, therefore, every care should be taken to prevent its occurrence. In spite of drip proof bars and other contrivances drip will sometimes occur from condensed moisture, and when least expected. When this takes place the plants should be at once removed to a place of safety.

Cymbidiums. Several members of this genus, such as *C. giganteum*, *C. Tracyanum*, *C. Mastersii*, and *C. Winnianum* are most useful Orchids, flowering as they do during the shortest days of the year when flowers of any description are valuable. Some of them are already in bloom, while others are fast

developing their spikes, and as these last a considerable time, either on the plants or in a cut state, they are worthy of all care. Plants of the late winter and spring-flowering kinds have mostly completed their season's growth, and are now pushing flower spikes. The amount of root moisture needed by Cymbidiums at this season will not be so great as hitherto, water being supplied only when the compost becomes dry. Those who are fortunate in having plants of *C. grandiflorum* (Hookerianum) pushing up flower spikes should take every care in the application of water to the roots, for if the compost is too wet the buds will turn black and fall off. This plant is best kept on the dry side whilst its flower spikes are developing.

Cypripediums. Members of this genus belonging to the cooler section are amongst the most important of the beautiful Orchids flowering at this season of the year. The ease with which these Cypripediums may be grown and the quantities of bloom that healthy plants will produce make them desirable subjects wherever indoor gardening is attempted. The flowers possess great lasting properties either in a cut state or upon the plants, and for decorative purposes the flowers are invaluable. They also have the good quality of withstanding fogs, which damage almost all kinds of flowers.

The love of Cypripediums is undoubtedly an educated taste. The more one sees of them the more fascinated does one become. The plants are always in growth, and on account of being without pseudo-bulbs absolute dryness of the compost for any length of time is injurious. At the present season the minimum amount of moisture at the roots is required, and when the plants have developed their flowers the compost may be allowed to become comparatively dry before affording water. A moist atmosphere must at all times be maintained, but a saturated one with a low temperature should be avoided or the flowers will become spotted and spoilt. Cypripediums in flower are most effective when grouped by

themselves and not placed amongst other Orchids in bloom.

Cattleyas and allied subjects. Not many species of these beautiful plants are in flower at this season of the year. With *Lælio-Cattleyas*, however, things are different, and it is now possible to make a display of bloom all through the winter, a condition regarded as impossible only a few years back. All these plants, together with their allies, should be afforded a light position in the *Cattleya* house, and, after flowering, should be kept on the dry side until growth recommences. The plants may be repotted whenever they are seen to be pushing new roots, using a compost as previously advised. *Cattleya Percivaliana* and *C. Trianae* whilst pushing up their flower spikes must have water whenever they become dry. Every inducement should be given them by placing the plants in the lightest position possible.

Plants of *Cattleya Warneri* starting into growth should also enjoy the lightest and warmest position and remain there until the flowers open. These remarks apply also to *C. Warneri alba*, the white hybrids derived from this species, such as *Mrs. Myra Peeters*, *C. intertexta alba* and *C. Mulleri*. Repotting should be done after the flowers fade for at that time numerous young roots push out from the base of the newly made pseudo-bulbs.

Phalæopsis. During the winter months there are few Orchids more difficult to manage, for owing to their succulent leaves, which are very susceptible to injury, and having no pseudo-bulbs to store up nourishment, watchfulness on the part of the grower is very necessary. If the leaves are properly consolidated the plants should be able to withstand the dryness at the roots and of the atmosphere which is necessary to carry them safely through the winter. Specimens having soft ill-matured foliage should not be subjected to the same treatment as those that are properly ripened, they should be kept in a warm temperature until the leaves are fully developed. Well matured plants should receive during the winter a minimum temperature of 58 to 60 degrees, but no harm will

accrue if a fall of a few degrees occurs temporarily during extremely cold nights. The plants should receive all the light possible without being placed too near the glass, a necessary precaution for the leaves are very susceptible to a sudden chill. Every care is necessary in affording water to the roots; only sufficient is required to keep the leaves plump and firm. Plants should never be allowed to suffer from excessive dryness during the winter months, for when growth commences in spring many of the leaves will be lost. Care is also necessary to guard against the other extreme, for an excess of moisture will cause damping and spotting of the foliage. If the house cannot entirely be devoted to their culture the next best means is to group the plants together in a house answering their requirements.

Vanda teres and *V. Hookeriana*. These beautiful *Vandas* require treatment different from others of their family. The sealing over of the points of the roots is a sign that growth is completed. These Orchids require a long season of rest when water should be afforded in only sufficient quantities to prevent shrivelling. The temperature of an intermediate house, such as the majority of *Cattleyas* enjoy, will answer their requirements at this season much better than a house with a warmer temperature. *Vanda Amesiana*, *V. Watsonii*, and *V. Kimballiana* are now pushing up their flower spikes, and as winter flowering subjects are very useful and beautiful. The plants, as soon as the flowers are over, pass through a brief period of rest, little water will be required, but the plants must not be allowed to shrivel, for this miscalled resting system is most harmful. *Vandas* of the tricolor section are fast growing and should be well supplied with water. Any recently repotted plants should have their flower spikes removed. Keep their surroundings always moist, and, if possible, conduct any aerial roots into the compost. The plants enjoy a circulation of fresh air at all times.

Miltonia vexillaria and its hybrids. These delightful Orchids, now in full growth, should be in a light position in the intermediate house. Care should be taken that the supply

of water is not too liberal or the tips of the leaves may turn black, a condition not only unsightly but detrimental to the health of the plant. The young growths should be periodically examined and any leaves which are adhering to each other should be carefully liberated. It will be found good practice to remove any leaves at the base of the plant which are preventing the young roots from entering the compost. Woodlice often do considerable damage by eating the

young roots of these plants; these insects must be destroyed whenever they can be seen.

Odontoglossums which are now sending up their flower spikes should be constantly examined for thrip. The old method of wrapping a piece of cottonwool around the spikes may be practised, although I do not believe much in its effectiveness in preventing insects from spoiling these valuable spikes.

ROYAL HORTICULTURAL SOCIETY.

AUTUMN ORCHID SHOW,

Nov. 5th and 6th, 1912.

THE very grand exhibit of Orchids shown by Lieut.-Col. Sir George Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), deservedly received Gold and Silver-gilt Lindley Medals. The gorgeous Cattleyas covered over 300 square feet, and embraced most of the finest autumn-flowering hybrids; the Fabias, numbering 55 plants, bearing a total of 260 flowers. Of the albino forms of *C. labiata* no less than 38 white flowers were to be seen on the various specimens; *C. labiata* Gilmouriae being specially good. More than 20 distinct Cattleya hybrids, a similar number of Lælio-Cattleyas, and various Brassavola hybrids were contained in this truly marvellous exhibit. With such high culture were all the specimens shown that it is difficult to individualise, but the following must be mentioned:—Cattleya Dowiana Rosita; *C. Dusseldorfei* Undine with 16 flowers; Lælio-Cattleya Golden Fleece, of wonderful colour; L.-C. Neleus, of distinct yellow hue; and L.-C. Amber, of unknown parentage.

Sir George Holford also received Gold and Silver-gilt Medals for a superb exhibit of *Vanda cœrulea* covering an area of 130 square feet, and containing 45 plants carrying more than 70 spikes of flower. A very beautiful effect was produced by allowing the bright blue flowers of the Vandas to hang gracefully over numerous sprays of the golden *Oncidium varicosum*.

The Davidson Silver Cup was awarded to Sir George Holford for an excellent exhibit of *Cypripediums*, the whole covering a space of 130 square feet. Most of the fine varieties for which the Westonbirt collection is celebrated were shown on this occasion, the high state of culture being a notable feature.

G. F. Moore, Esq., Bourton-on-the-Water, received a Gold Medal for an exceedingly attractive group of *Dendrobium Phalænopsis Schröderianum*, the most distinct varieties being the pure-white hololeuca and the pinkish tinted Miss Louisa Deane. At the back were various autumn-flowering *Oncidiums*, and in the front numerous *Cypripediums*, Cattleyas and their hybrids, Brassavola crosses, and various other Orchids, the whole forming a most beautiful and attractive exhibit.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), was awarded a Silver Cup for an extensive group containing a fine selection of autumn-flowering hybrids and excellent varieties of the well-known species, Cattleya Mrs. Pitt "Goodson's variety" and a large number of the bright-yellow *Cypripediums*, insigne *Sanderæ* being specially noteworthy. *Sophro-Cattleyas* and *Sophro-Lælias* were also shown in variety.

Sir Jeremiah Colman, Bart., Gatton Park, received a Large Silver Cup for a praiseworthy exhibit of the distinct Cattleya *Portia cœrulea*, *Vanda cœrulea*, various Lælio-Cattleyas, the elegant *Odontioda Bradshawiae* *Gattoniensis*, *Cypripediums* and other species

in great variety, and several elegant forms of *Cattleya Fabia*.

The same exhibitor also received a Silver Cup for a very interesting exhibit of Botanical Orchids. These included *Bulbophyllum mirum*, *B. lemniscatum*, *Cœlogynes*, *Masdevallias*, *Restrepias*, and the pretty *Epidendrum nocturnum*.

J. Gurney Fowler, Esq., Glebelands, Scuth Woodford, obtained a Silver-gilt Flora Medal for a triangular group of *Cypripediums*, including *Sanderæ*, Glebelands, and Mrs. Alfred Fowler; various forms of *Cattleyas*, the rare *Odontoglossum vexativum*, a good selection of bright yellow *Oncidium*s, and several albinos of high merit.

E. R. Ashton, Esq., Broadlands, Tunbridge Wells, was awarded a Silver Cup for a group of exceedingly well-grown specimens. Included in it were *Lælio-Cattleya Canhamiana*, *L.-C. luminosa*, *Cattleya Oberon*, with distinctly coloured petals, and *C. labiata* var. *James Lowther*, a beautiful albino form with a slight blush tint on the labellum.

F. du Cane Godman, Esq., South Lodge, Horsham (gr. Mr. G. Giles), obtained a Silver Flora Medal for an attractive exhibit, in which we noticed many well-flowered specimens of the pretty *Oncidium cheirophorum*, the rare *O. ornithorhynchum album*, *Pleione lagenaria*, several good *Fabias*, the richly coloured *Lælio-Cattleya Godmanii*, and various *Cypripediums*.

W. H. St. Quintin, Esq., Scampston Hall, Rillington, Yorks (gr. Mr. Puddle), exhibited *Lælio-Cattleya Scampstonensis* (*C. aurea* × *L.-C. La France*), a large plant carrying medium-sized flowers with brownish-red sepals and petals and a broad magenta-purple labellum with yellow discs in the centre.

Messrs. Charlesworth and Co., Haywards Heath, obtained a Gold Medal for one of the finest groups, the centre being composed of numerous plants of the orange-scarlet *Epidendrum vitellinum autumnale*, while the sides were made up of selections of the best autumn-flowering hybrids. Special plants included *Cattleya Rhoda The Jewel*, *C. Venus* var. *Princess*, and *Lælio-Cattleya Orion* var. *Othello*.

Messrs. Sander and Sons, St. Albans, were awarded a Gold Medal for an extensive group containing many interesting species and hybrids, the best being *Odontoglossum Neptune* (*crispum* × *nebulosum*), the pure white *Cattleya Mulleri*, *Odontioda Graireana*, and *Cattleya Fabia Her Majesty*, a very beautiful form with white sepals and petals and a coloured lip.

Messrs. Mansell and Hatcher, Rawdon, Yorks, secured a large Silver Cup for a very well arranged exhibit. The *Cattleya* hybrids and the rare botanical species attracting considerable attention. Mention must be made of *Sophro-Cattleya Marriottiana*, *Cattleya labiata alba*, *Odontioda Cupid*, the curious *Dendrobium Cœlogyne*, and a specimen *Dendrochilum Cobbianum*.

Messrs. J. Cypher and Sons, Cheltenham, obtained a Silver-gilt Flora Medal for a very effective group of *Lælio-Cattleyas*, *Dendrobium Phalænopsis*, the elegant *D. formosum*, and interesting *Cattleyas*. In the special class for *Cypripediums* this firm staged numerous specimens of insigne *Sanderæ* and other well known and excellent hybrids, a Silver Cup being awarded.

Messrs. Stuart Low and Co., Bush Hill Park, were awarded a Gold Medal for a group not exceeding 150 square feet. The excellent method of arrangement showed the numerous specimens to great advantage. One of the brightest forms of *labiata* was seen in the variety *Mrs. G. B. Wilson*, and the *Vandas*, *Oncidium*s, and well-flowered specimens of *Dendrobium formosum* were considerably praised.

Messrs. J. and A. McBean, Cooksbridge, secured a Silver Cup for an extensive display of beautiful Orchids. Mention must be made of *Vanda Sanderiana*, particularly well-flowered, the new *Cattleya Fabiata*, a selection of *C. Fabia* comprising some of the richest varieties yet seen, *C. aurensis*, numerous specimens of *Cypripedium insigne Sanderæ*, *Miltonia vexillaria Leopoldii*, and the new *Cymbidium Doris*.

Messrs. Jas. Veitch and Sons, Chelsea, were awarded a Silver Banksian Medal for a pretty group of *Calanthes*, various *Brassavola* and

Cattleya hybrids, and the extremely beautiful *Odontoglossum Aurora*.

Mr. E. V. Low, Vale Bridge, Haywards Heath, obtained a Silver Flora Medal for a small group of rare Orchids. Included in it were *Cattleya labiata* The President, C. l. "W. R. Lee" with 8 flowers, *C. Thayeriana* "Low's variety," *Odontoglossum aureum* "Wigan's variety," and some excellent *Cypripediums*.

Mr. Sidney Flory, Amyand Park Nursery, Twickenham, received a Silver Banksian Medal for a group containing many good specimens of *Cypripediums*, *Cattleyas*, and *Odontoglossums*. *Cymbidium Tracyanum*, a grand plant, obtained a Silver Banksian Medal for the best single specimen.

Mr. Harry Dixon, Spencer Park Nursery, Wandsworth Common, secured a Silver Banksian Medal for a well-arranged group of *Odontoglossum Edwardii* hybrids, various *Cattleyas*, and other useful Orchids.

Mr. G. W. Miller received a Silver Banksian Medal for a group of *Cypripediums*.

Mr. Treseder received a Bronze Banksian Medal for a small group of various Orchids.

C. J. Phillips, Esq., The Glebe, Sevenoaks, exhibited *Cattleya labiata* "Glebe variety," a fine plant with a spike of three very large white flowers having a slight suspicion of colour on the lip. Also *C. Fabia* "Glebe variety," a large flower, but somewhat wanting in colour.

de Barri Crawshay, Esq., Rosefeld, Sevenoaks, sent *Odontioda Bella* of excellent colour, and *Odontoglossum Thompsonianum* with broad segments and richly coloured

W. P. Burkinshaw, Esq., Hess'e, Yorks, exhibited *Cypripedium Boltonii magnificum*, a well-grown plant; and *Cyp. Aphrodite*, a very fine flower with a large flat dorsal elegantly veined with purple.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford, showed *Cattleya Venus* "Burford variety," a bright orange-yellow flower with a reddish lip veined with gold.

Mrs. Norman Cookson, Oakwood, Wylam, received a Silver-gilt Banksian Medal for the best exhibit of three specimen Orchids. These were *Odontioda Bradshawiae* "Cookson's

variety," *Calanthe Angela*, and the large white *C. Cooksoniae*.

ORCHID COMMITTEE.

Present: J. Gurney Fowler, Esq. (in the chair), Messrs. Jas. O'Brien (hon. sec.), W. Bolton, W. Waters Butler, W. Cobb, R. G. Thwaites, de B. Crawshay, G. F. Moore, J. S. Moss, R. Brooman-White, H. J. Chapman, W. H. White, A. Dye, J. E. Shill, W. H. Hatcher, J. Cypher, J. Charlesworth, C. H. Curtis, Gurney Wilson, F. M. Ogilvie, F. Sander, A. McBean, T. Armstrong, F. J. Hanbury, R. A. Rolfe, Stuart Low, Sir Harry J. Veitch, and Sir Jeremiah Colman, Bart.

AWARDS.

FIRST-CLASS CERTIFICATES.

Vanda cœrulea "Lady Holford," from Lieut.-Col. Sir George Holford, K.C.V.O. (gr. Mr. H. G. Alexander).—A magnificent plant and variety, carrying two spikes, one with 20 and the other with 18 large flowers.

Cattleya Peetersii "Westonbirt variety" (*labiata alba* × *Hardyana alba*), from Sir George Holford.—The large flowers of clear white with a ruby-purple lip veined with gold at the base.

Odontoglossum Aurora (*Lambeauiana* × *Rossii rubescens*), from Messrs. Jas. Veitch and Sons, Chelsea.—The richest coloured of all the *Rossii* hybrids, the deep purple flowers being handsomely spotted with dark reddish-purple.

Odontioda Bradshawiae gattoniensis (*O. crispum* × *C. Noezliana*), from Sir Jeremiah Colman, Bart.—A particularly well developed flower of deep scarlet-red, and of large size.

Cattleya Rhoda The Jewel (*Iris* × *Hardyana*), from Messrs. Charlesworth and Co.—A large orange-yellow flower with a cherry-red lip having bright yellow discs on the side lobes.

Cattleya Orion var. *Othello*, from Messrs. Charlesworth and Co.—Flowers of very dark reddish-claret with maroon lip veined with gold.

Cattleya Fabia gloriosa, from Lieut.-Col. Sir George Holford.—One of the darkest forms of this popular hybrid.

Cattleya Fabia "Sunset," from Lieut.-Col. Sir George Holford.—A very distinct flower, the colouring being particularly soft and of varying sunset hues.

Cattleya Hardyana "La Perle," from Lieut.-Col. Sir George Holford.—Flowers large, sepals and petals pure white, labellum rich purple, but having very large areas of light yellow on the side lobes.

Cattleya Venus var. *Princess*, from Messrs. Charlesworth and Co.—A very distinct variety with flowers of a peculiar greenish-yellow hue, the labellum marked with dark crimson-purple.

Cattleya Oberon (*Fabia* × *Hardyana*), from E. R. Ashton, Esq., Tunbridge Wells.—A very pretty hybrid with the petals marbled over their outside area with purple; lip bright purple with the flat part of golden hue.

Cypripedium Muriel (*Euryades* × *Cynthia*), from Sir George Holford.—A grand hybrid of the *Euryades* section, but somewhat larger and thicker set.

Cypripedium Glebelands (*Lathamianum* × *insigne Chantinii*), from J. Gurney Fowler, Esq.—A large flower with the upper half of the broad dorsal white, the lower half handsomely spotted.

Brasso-Cattleya Mdm. Jules Hye "Ashton's variety," from E. R. Ashton, Esq., Broadlands, Tunbridge Wells.—The well-developed lip of this hybrid is deeply fringed and of a light greenish tint, sepals and petals pinkish-mauve.

Lælio-Cattleya Walter Gott, from Messrs. Sander and Sons.—The finest form of this hybrid. Flowers large, of good shape, rosy-crimson in colour.

Odontoglossum eximium "McBean's variety," from Messrs. J. and A. McBean, Cooksbridge.—A very beautiful and perfectly-formed flower, the segments blotched with dull purple, lip slightly pandurate at the apex.

Lælio-Cattleya Golden Fleece, from Sir George Holford.—The segments of this hybrid are somewhat narrow, but the golden-yellow colour is magnificent.

November 19th, 1912.

MEMBERS of the Orchid Committee present: Sir Harry J. Veitch (in the chair), and Messrs. Jas. O'Brien (hon. sec.), Gurney Wilson, R. A. Rolfe, R. G. Thwaites, F. J. Hanbury, F. Sander, A. McBean, C. H. Curtis, J. Charlesworth, J. Cypher, W. H. Hatcher, J. Shill, W. P. Bound, W. H. White, C. J. Lucas, W. Bolton, R. Brooman-White, de B. Crawshay, and T. Armstrong.

His Grace the Duke of Marlborough, Blenheim Palace, was awarded a Gold Medal and a Silver Lindley Medal for a magnificent group of *Vanda coerulea*, staged in excellent style. The numerous plants had all been grown from small imported pieces and the leaves were comparatively free from blemish. Many of the varieties were of a rich blue colour, and gave ample proof that the cultural details were correctly carried out. The foreground was effectively filled with various albino *Cypripediums*.

Messrs. Stuart Low and Co., Bush Hill Park, received a Silver Flora Medal for an extensive group of choice species and hybrids. Notable plants included an elegant hybrid between *Cattleya labiata* and *C. Lueddemanniana*, several richly coloured *C. Fabias*, *C. labiata alba*, the useful *Dendrobium formosum*, and the pretty *Epidendrum xanthinum*.

Messrs. Charlesworth and Co., Haywards Heath, secured a Silver Banksian Medal for a small group of select plants, including *Odontioda Constance* (*Od. Clytie* × *Odontioda Bradshawiæ*), a crimson-purple blotched flower; the new *Oncidioda Majorie* (*C. Noëzliana* × *Oncidium Forbesii*), of reddish-buff colour with the apex of the lip very broad and of yellowish-buff colour; *Oncidium hybridum* (*tigrinum* × *lamelligerum*) with chrome yellow lip, the sepals and petals almost covered with brown blotches; and several excellent *Cypripediums*.

Messrs. J. Cypher and Sons, Cheltenham, received a Silver Banksian Medal for an attractive group of *Cypripediums*, the best including *Corona*, *Charlesianum*, *Leander*, and varieties of *insigne*.

Messrs. Sander and Sons, St. Albans,

staged some very fine examples of rare species and handsome hybrids. *Cœlogyne brunnea*, *Oncidium bicallosum*, and the curious *Cirrhopetalum Medusæ* were especially noteworthy.

Messrs. J. Veitch and Sons, Chelsea, obtained a Silver Banksian Medal for a good group, including *Lælio-Cattleya Priam*, the new and interesting *Odontoglossum Anaphe* (*Uro-Skinneri* × *crispum*), and several excellent *Cypripediums*.

Messrs. Swan and Price, Keyfield Nursery, St. Albans, were awarded a Bronze Banksian Medal for an interesting exhibit of *Cypripediums*, the varieties of *insigne*, *Queen Alexandra*, and others showing to considerable advantage.

Messrs. Hassall and Co., Southgate, staged the curious *Angræcum infundibulare*, a strong growing specimen of *Dendrobium Cœlogyne*, several good *Cypripediums* and some handsome blotched *Odontoglossum* hybrids.

Lieut.-Col. Sir George Holford, K.C.V.O. (gr. Mr. H. G. Alexander), exhibited *Lælio-Cattleya Neleus* (*Iris* × *Ophir*), somewhat resembling the former parent in form and colour.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. G. Day), staged *Odontoglossum amabile* "Rosetta," *Cattleya Iris* "King George V.," one of the finest forms of this hybrid, and *Sophrocattlælia Olive* "Fairlawn var.," of excellent shape and colour.

Sir Trevor* Lawrence, Bart., K.C.V.O., showed *Lælio-Cattleya Adolph-Iris*, a very pretty flower effectively marked with crimson.

Mr. E. H. Davidson, Orchid Dene, Twyford, staged a large flowered *Odontoglossum* of the *amabile* type, and *Cattleya labiata* "Helene" with pure white sepals and petals and the lip coloured.

Lady Theodora Guesh, Inwood, Templecombe, showed a good variety of *Cattleya Neptune* (*labiata* × *Schilleriana*).

F. Arnold Hindley, Esq., Great Horton, Bradford, showed *Cypripedium Hassallii* "Hindley's var.," a large flower with dark rose flushed dorsal.

C. J. Lucas, Esq., Warnham Court, exhibited *Cypripedium Harlequin*, with

curious coloration, and also *Lælio-Cattleya Muriel*.

W. Thom, Esq., Athol House, Blackburn, staged *Cypripedium Bulgar* (*Parkerianum* × *insigne* Harefield Hall).

Messrs. J. and A. McBean, Cooksbridge, exhibited *Lælio-Cattleya Autodoin* (*L. autumnalis* × *C. Octave Doin*), with a large rose-purple flower having an extensive yellow area in the throat.

AWARDS.

FIRST-CLASS CERTIFICATES.

Lælio-Cattleya Bella "Orchid Dene var.," from Mr. E. H. Davidson, Twyford.—A magnificent flower with an immense lip of rich crimson-purple. One of the finest forms of this well-known hybrid between *C. labiata* and *L. purpurata*.

Cypripedium Elatior "Shrubbery var.," from F. M. Ogilvie, Esq., The Shrubbery, Oxford.—A very elegant and richly coloured hybrid. The broad segments are well displayed, and with the unusual bright purple colour, make it the best of its class.

AWARDS OF MERIT.

Lælio-Cattleya Scylla (*Cappei* × *Lord Rothschild*), from F. M. Ogilvie, Esq.—With five reddish-orange flowers on a spike this hybrid is extremely beautiful, and makes a pleasing change from the numerous flowers of the purple-coloured type.

Cypripedium Latona (*Niobe* × *Alcibiades*), from Lieut.-Col. Sir George Holford.—Although somewhat a small plant the flower is large, with a broad, white dorsal, green at the base, and spotted with purple-brown

The following was omitted from our report of the meeting on October 22nd, 1912:—

FIRST-CLASS CERTIFICATE.

Brasso-Cattleya Digbyano-Mossiaë "The Dell var.," from Baron Bruno Schröder.—A very large form with broad segments and well-developed fringed lip. White, with primrose-yellow disc to the lip.

MANCHESTER ORCHID SOCIETY.

October 17th, 1912.

MEMBERS of the Committee present: Rev. J. Crombleholme (in the chair), Messrs. J. Bamber, J. C. Cowan, J. Cypher, J. Evans, Dr. Hartley, W. Holmes, J. Lupton, D. McLeod, H. Morgan, C. Parker, H. Thorp, Z. A. Ward, A. Warburton, and H. Arthur.

A Large Silver-gilt Medal was awarded to A. Warburton, Esq.; a Silver-gilt Medal to Mrs. A. K. Wood; a Large Silver Medal to Z. A. Ward, Esq., R. Ashworth, Esq., Col. J. Rutherford, J. McCartney, Esq., Messrs. J. Cypher and Sons, Messrs. Charlesworth and Co.; Silver Medals to Rev. J. Crombleholme, Messrs. Sander and Sons, and Mr. J. Evans.

AWARDS.

FIRST-CLASS CERTIFICATES.

Cattleya Adula "Marlfield variety," a large flower with bronzy segments; *Cattleya labiata* Mdm. le Doux, sepals and petals pure white; *Cattleya* Mrs. Pitt "Charlesworth's variety," one of the finest forms seen. All the above from R. le Doux, Esq.

Cattleya Enid "Ward's variety," a large well-set flower, from Z. A. Ward, Esq.

Cypripedium Our Queen (Leeanum × Stevensii), from Wm. Thompson, Esq.

Cattleya labiata "Queen of Spain," white sepals and petals; *Cattleya* Enid "Orchid Dene variety"; *Brasso-Cattleya* heatonense var. virginale; *Lælio-Cattleya* Colmaniana "Orchid Dene variety." All from Mr. E. F. Davidson.

AWARDS OF MERIT.

Odontoglossum scintillans (Rossii × Wilckeanum), from Wm. Thompson, Esq.

Cattleya Portia magnifica, from Mr. E. F. Davidson.

November 7th, 1912.

MEMBERS of the Committee present: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, J. Cypher, J. Evans, A. Hanmer, Dr. Hartley, W. Holmes, A. J. Keeling, J. Lupton, D. McLeod, H. Thorp, Z. A. Ward, A. Warburton, and H. Arthur.

A Silver-gilt Medal was awarded to A.

Warburton, Esq.; Large Silver Medals to Z. A. Ward, Esq., and Messrs Sander and Sons; Silver Medals to Col. J. Rutherford, M.P., Rev. J. Crombleholme, J. McCartney, Esq., Messrs. A. J. Keeling and Sons, and Messrs. J. Cypher and Sons; A Special Vote of Thanks to O. O. Wrigley, Esq.

AWARDS.

FIRST-CLASS CERTIFICATES.

Cattleya Iris "Ashworth's var.," from R. Ashworth, Esq.

Cypripedium Jasper (Alcibiades × Hitchensæ), from Z. A. Ward, Esq.

Cypripedium Hassallii "Hindley's var.," (Charlesworthii × bingleyense), from F. A. Hindley, Esq.

AWARD OF MERIT.

Odontoglossum crispum "Arthur," from Z. A. Ward, Esq.

November 14th, 1912.

MEMBERS of the Committee present: Rev. J. Crombleholme (in the chair), R. Ashworth, J. Cypher, J. Evans, W. Holmes, J. Lupton, C. Parker, H. Thorp, Z. A. Ward, and H. Arthur (Secretary).

Gold Medals were awarded to W. R. Lee, Esq., Col. J. Rutherford, M.P., and Messrs. J. Cypher and Sons; Silver-gilt Medals to Mrs. A. K. Wood, A. Warburton, Esq., and Messrs. Charlesworth and Co.; Large Silver Medal to R. Ashworth, Esq.; Silver Medals to Rev. J. Crombleholme and J. McCartney, Esq.

AWARDS.

FIRST-CLASS CERTIFICATE.

Cattleya labiata "Cyme," pure white sepals and petals, from Col. J. Rutherford.

AWARDS OF MERIT.

Cattleya labiata "Vestalis," Cyp. Actæus "Ashlandense No. 2," and Cyp. insigne Rossendale (Sanderæ × Laura Kimball), all from R. Ashworth, Esq.

CULTURAL CERTIFICATES.

To Mr. Gilden for *Cattleya* Portia, and to Mr. Gould for *Vanda* cœrulea.

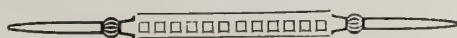
Vol. 3.

THE

ORCHID WORLD.

No. 4.

JANUARY, 1913.



NOTES.

ST. PETERSBURG EXHIBITION.—On account of the Ghent Show, which takes place next April, the International Exhibition arranged to be held at St. Petersburg in April, 1913, has been postponed until 1914.



AUTUMN ORCHID SHOW.—Orchidists will be glad to know that the Council of the Royal Horticultural Society has decided to make this show an annual event. Preliminary plans of an even better and more artistic style of stage arrangement have already been discussed by prominent officials.



IRREGULAR CYPRIPIEDIUM.—An interesting case of irregular peloria has recently appeared in the collection of Edward Roberts, Esq., Park Lodge, Eltham. The specimen, *Cypripedium conco-callosum*, has the two lateral petals transformed into labellums similar in shape and colour to that usually assumed by the median petal, thus closely resembling the homologous and well-known *Cyp. insigne* Oddity. The term peloria is applied to cases in which the flower becomes regular by the labellum assuming the shape of the petals, as in *Cyp. caudatum* Lindenii (*Uropedium Lindenii*), but when the flower becomes regular by the increase of the irregular portions, as in three-lipped specimens, the term irregular peloria is used.

ORCHID SPORT.—An interesting event has occurred in the Orchid houses of Mrs. William S. Kimball, of Rochester, N.Y., U.S.A. The particulars, which have been sent to Sir Harry J. Veitch by Mr. Colin B. Ogston, are as follows:—The Baby Sport, as we call it, appeared from the root of a *Cypripedium Harrisianum*, a very large and dark flowered variety. The babe is a perfect miniature plant, very compact, and a most remarkable grower. The colour is greenish-yellow overlaid by very light brown. Considering the smallness of the plant, the flower is large, very flat, and never looks thin. The plant is now two years old, has nine growths, and three fully expanded flowers.



ODONTOGLOSSUM BRONZE DRAGON.—From the well-known collection of Richard Ashworth, Esq., Newchurch, Manchester, comes a flower of the very remarkable and beautiful *Od. Bronze Dragon*, which received a First-class Certificate when exhibited by J. J. Holden, Esq., of Southport, at the Manchester Orchid Society, November 30th, 1911. Nearly four inches in width, this noble example of the hybridist's art is almost covered with rich rose-purple colour, the uncovered portions being the tips of the sepals and petals, as often seen in *Harryanum* crosses, and the broad apex of the labellum which is pure white.

CÆLOGYNE BARBATA.—This useful winter-flowering species has recently been seen in fine form in the collection of Pantia Ralli, Esq., Ashstead Park, Surrey. The coriaceous leaves are about fifteen inches in length. The flower scapes are erect, producing a raceme of several flowers, which open in succession, the individual blossoms being from two to three inches across. The sepals and petals are pure white, the lip is distinctly bearded round the margin with a fringe of sepia-coloured hairs, and has three shaggy crests. Dr. Lindley regarded this species as one of the finest of the genus.



Rhynchostylis retusa alba.

RHYNCHOSTYLIS RETUSA ALBA.—The above illustration is from a photograph of this great rarity flowering in the extensive collection of Gust. H. Müller-Abeken, Esq., The Hague, Holland. This species is better known in gardens under the name *Saccolabium guttatum*, and is widely distributed from India to Java. The albino form differs from the type by being without the violet-

purple markings on the sepals and petals and the purple colour on the lip.



ALBINISM IN ORCHIDS.—A further proof of the interesting theory that white Orchids may be produced by the combination of the three primary colours, red, blue, and yellow, was given by Mr. Richd. G. Thwaites at the Scientific Committee Meeting of the Royal Horticultural Society, December 3rd, 1912, when he exhibited *Lælio-Cattleya Osiris*, a new hybrid produced by crossing *L. pumila* with *L.-C. Ophir* (*xanthina* × *aurea*). The sepals were creamy-white and had that curious greenish tinge which, in the opening flower, invariably denotes a subsequent state of pure whiteness. The petals, in a general way, would be described as white, but they had a slight suffusion of rose-purple pigment along their central area. The labellum was marked with slight purple lines and a suffusion of dull purple on the front lobe. The *pumila* flower carried the combined red and blue, while the *Ophir* contained the yellow, and although these colours have united in forming a white flower, they have not done it in so perfect a manner as to produce pure white in every segment of the flower. However, the strong effort made by the plant to produce a perfect albino is clear evidence that much may be expected in the near future regarding this novel method of producing albino Orchids. The Scientific Committee considered the matter one of considerable interest and wished to be informed of further results.



CATTELEYA BALLANTINIANA.—This uncommon and little-known hybrid between *C. Trianae* and *C. Warszewiczii* was originally raised by Messrs. Sander and Sons, who named it in honour of Mr. Ballantine, Orchid grower to Baron Schröder, in whose collection it flowered for the first time in February, 1889. The increasing difficulty experienced in making new primary hybrids has induced raisers to reproduce the earlier known ones

by the use of finer parents, and albino forms readily introduce themselves for this purpose. It is worthy of note that Mr. James H. Hill, Haywards Heath, has recently flowered *C. Ballantiniana alba*, a distinct variety raised from *C. Trianæ alba* and *C. Warscewiczii* "Frau Melanie Beyrodt." The flowers somewhat resemble *C. Maggie Raphael alba* (*Trianæ albens* × *aurea*), but differ from this in having snow-white sepals and petals and a light purple lip, clearly showing on the side lobes the two yellow discs characteristic of *C. Warscewiczii*.



RUSSIAN ORCHID SOCIETY.—A Society of Orchid Amateurs has been officially inaugurated in Moscow. This, the first society of its kind in Russia, already consists of twenty members, all real amateurs. The meetings will take place monthly, the programme being extensive and similar to that of other Orchid Societies. Dr. Jean Troyanowsky has been elected President, and it is largely due to his enterprise that such a successful commencement has been made. The members of the Committee are: A. Warjenevsky, A. Karzinkin, A. Langovoy, and S. Woronin. We heartily wish our Russian friends continued prosperity.



FRANK ASHTON RELIEF FUND.—A small committee of Orchidists has been formed to assist Mr. Frank Ashton, who has, unfortunately, fallen into indigent circumstances, and who is no longer able to follow his employment as a traveller in Orchids. He has been struggling against fate for the past two or three years, but has at last been compelled to give up owing to continued ill-health. His resources are practically at an end. An appeal is therefore made to all those who have been associated with Mr. Ashton in the Orchid business to show their practical sympathy with him in his great affliction by contributing towards a Fund which will be utilised to establish him in some small home business. Donations may be sent to the Secretary of the Kew Guild (Mr. Herbert

Cowley, South Side, Kew Green), or to me, and will be gratefully acknowledged on Mr. Ashton's behalf.—*John Weathers, 7, Talbot Road, Isleworth, Middlesex (Secretary).*

AN ORCHID.

I AM awed by a presence! The very atmosphere seems to wait upon this Orchid. Can a creature hold at once such passion and such purity! It is genius, humanly and divinely comprehensive, and springs fresh from the heart of Life.

I bend my head to listen. What is it saying? From what celestial zone does it come? From the borderland where bodies achieve soul-being refined to the point of such attainment, the beauty and mystery that are flesh becoming infused with the mystery and beauty that are soul.

If soul should take form and become visible to us would the form be like this, I wonder? The form is varied as the impulses of power yet perfect in balance; rich for receiving and giving and fulfilling. A keen sword is here with which to cut a way through darkness, and above, though the root is in earth, are wings. The clear light falling upon this form casts there no other shadow than the sibylline shadow of its own wings, and at the top of its utmost reach, above all suggestion of earthy hold or colour, aspires this spotless white which glistens in the light as silver and gold.

INEZ DICKINSON CUTTER.

CONFERENCE REMARKS.

THE roots of epiphytic Orchids should not be covered up in the same way as those of terrestrial kinds.

Epiphytic Orchids usually grow near the tops of trees, and thus get more sunshine than the terrestrial forms.

Thomas Lobb, an early collector of *Vanda cœrulea*, always discovered the finest plants growing on trees which were solitary and surrounded with plenty of fresh air.

Vanda cœrulea is often started into growth

too early in the season. Light increases the richness of the blue; heavy shading reduces the colour.

Anyone who could discover a successful method of growing *Miltonia spectabilis* would receive the thanks of all amateurs and those hybridists who were attempting to make use of its wonderful colour.

Amateurs frequently attempt to grow too many kinds of Orchids in the same house. Certain methods will grow one class but kill another.

THE NOMENCLATURE OF CYPRIPEDIUMS.

THE recent article on the nomenclature of *Cypripediums* advocated the giving of but one name to all hybrids inheriting the characters of the same species, and additional varietal names for the various forms.

The Rev. J. Crombleholme, however, in carefully commenting upon the proposed nomenclature, shows, arithmetically, that it is possible for one *Cypripedium aureum* to contain 12/16ths *insigne*, and another to contain 14/16ths *Spicerianum*, and asks, therefore, "would not such a system be illogical and unscientific?"

But Prof. Keeble in his recent lecture at the Orchid Conference on the "Physiology of Fertilisation" regarded this system of fractional parentage as one likely to lead us further astray, for although it may be correct arithmetically, it is not so in a practical way. Major Hurst is also of the same opinion, for he stated at the same Conference that the common practice of analysing Orchid hybrids in fractional terms is to be deprecated, as in most cases these must be erroneous. The simple fact of the segregation of characters in the second generation altogether upsets such calculations.

One, therefore, cannot but help forming the logical conclusion that there is much of real scientific value in the suggestion to amend our system of nomenclature to a style more in accordance with Nature's doctrine of evolution.

SOUTHERNER.

JANUARY.

January may well be termed the most trying time for Orchid growers, at least so far as England and many parts of the Continent are concerned. It is true that most of the damp and dull days of late autumn and winter have passed away, but these have gone only to give place to others which try our patience very severely and almost to breaking point. An amateur who is truly fond of his plants—and there are but few who are not—oftentimes overdoes his kindness towards them, and his best endeavours to assist them through this almost lifeless period are not always conducive to their well-being.

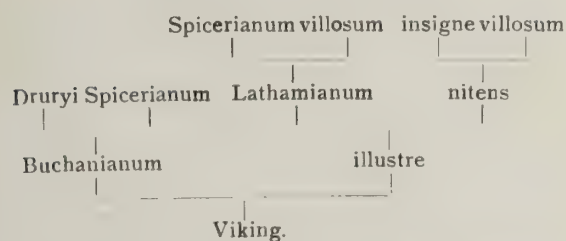
In almost all phases of nature we notice the same inclination to pass into a quiet cessation from action of any kind. All that apparently takes place is the smallest amount of energy required to support the life of the individual until lengthening and brighter days return with their accustomed regularity.

The summer that we in this country experience may be almost tropical so far as sunshine and heat are concerned, or it may be arctic with regard to the many sunless and cold days experienced. Even its arrival is uncertain; one genial day may be followed by another as inclement as those of mid-winter, while yet another may vary in its temperature hourly. Yet all these varying changes bring us, sooner or later, to the growing season of our Orchids.

Therefore, it behoves every one of us to have all our plants in that healthy and favourable condition so essential to immediate beneficial effect being obtained directly the turn of the season brings us the return of summer, or, in more appropriate language, the annual recurrence of our correct cultural atmosphere.

Nothing is more detrimental to Orchids than to allow the plants to remain forgotten, generally in an unsuitable place, during the winter-time. Many amateurs, especially those with little experience, imagine that Orchids will accommodate themselves to any conditions of atmosphere and temperature. But such is not the case.

CYPRIPEDIUM VIKING.



This new and elegant *Cypripedium* received an Award of Merit, Royal Horticultural Society, December 3rd, 1912, when exhibited by Lieut.-Col. Sir George Holford, K.C.V.O., Westonbirt. The diagram above will show that the raiser, Mr. H. G. Alexander, has made use of four species: *insigne*, *villosum*, *Spicerianum*, and *Druryi*, all of which are more or less represented in the resulting hybrid. The strong influence of *villosum* is seen in the broad petals and their peculiar varnished appearance, and in the dark, median coloration of the dorsal sepal; *Spicerianum* has produced the broad, white dorsal, which always gives an attractive nature to any *Cypripedium*; *Druryi* has imparted the wax-like texture and the slight yellowish tint diffused throughout the whole flower, and has also given breadth to the petals; while *insigne*, as might be expected from the small part it takes in the parentage, is only obscurely represented. *Cypripedium Viking* is a distinct and useful addition to the Westonbirt series of these terrestrial Orchids.

ONCIDIUM CHEIROPHORUM.—The *Journal of Horticulture*, December 19th, 1912, contains an illustration of a well-grown plant of this Colombian species.

NEW HYBRIDS.

LÆLIO-CATTLEYA EVERSHTENSIS.—By crossing *C. Forbesii* with *L. cinnabrosa* (*cinnabrina* × *tenebrosa*) a pleasing hybrid has been raised in Mr. Eustace F. Clark's collection at Evershot, Dorset. The sepals and petals are clear straw-yellow, the three-lobed lip handsomely veined along its entire length



Photo by]

[F. Waldoch.

Cypripedium Viking.

with crimson, and the bulbs inherit much of the *tenebrosa* form.

LÆLIO-CATTLEYA CHARMIAN.—Messrs. Veitch and Sons have produced this new hybrid between *L.-C. blechleyensis* and *C. Trianae*. The influence of the flower of *Warszewiczii*, derived through the former parent, has imparted good qualities to the resulting new seedling.

BRASSO-CATTLEYA ANDRÉ MARON.—*Cattleya Schröderæ* and *Brasso-Cattleya* Mrs. J. Leemann are the parents of this new hybrid, which was exhibited by Mr. René Gaveau, at the Berlin Orchid Show, November, 1912.

THE DISBUDDING OF ORCHIDS.

THE disbudding of Orchids is, at the present time, a subject worthy of our careful consideration, for it has been widely discussed by various Orchid growers in all parts of the country. Every amateur and admirer of these elegant flowers rightly desires to see them grown to the highest state of perfection, a condition which must imply natural perfection, and it is upon the various meanings of this perfect state that almost all the controversy regarding disbudding has arisen.

The prohibition of disbudding Orchids was originally instituted to discourage a somewhat common practice of removing the majority of the immature flower buds from the spike, thus allowing the remaining buds to receive an abnormal supply of nutriment, with the result that overdevelopment took place. Plants purchased with such exaggerated flowers always gave considerable disappointment when flowering the following season, assuming, of course, that the spike was allowed to grow in its natural and complete state.

The standard of size and development thus rose, by degrees, to a very high and unnatural state, and amateurs were not entirely to blame when they discovered the fact that unless they followed the evil practice of others they had little, if any, chance of receiving awards or of obtaining paintings, which although correct so far as the artist was concerned were exaggerated when compared with the plant's natural behaviour. Such an injurious state of things could only be remedied by the Royal Horticultural Society taking a firm stand and refusing to grant a certificate to any plant that had been disbudded. By this means a normal and healthy condition of culture and exhibiting has at last been attained.

But such stringent rules, however necessary, have disadvantages which, as time goes on, become more apparent. Take, for instance, a small seedling *Odontoglossum* flowering for the first time, and, consequently, not displaying its full beauty. The majority of growers would not hesitate to disbud the

spike in proportion to the size and strength of the flowering bulb, and, by so doing, a fairly correct and natural bloom would be produced, or, in other words, one or more flowers would be obtained correctly indicating the future merit of the plant when it attains full size and vigour.

Now, if the Orchid Committee, after careful consideration, could grant awards to such plants much real encouragement would be given to the amateur or raiser, but, up to the present time, owing to the existence of disbudding rules, very few, if any, of the finest present-day hybrids have been publicly exhibited until they have been grown to specimen plants. First-class Certificates and Awards of Merit should, undoubtedly, be given in accordance with the special merit of the variety, and on the earliest occasion that the Committee is able to form a correct impression of the plant's real merit. To delay such certificates until the plant has been grown into a specimen is surely covering the ground for which a Cultural Commendation is intended.

The term "disbudding" requires careful definition. In its present sense it includes two very distinct methods. Undoubtedly, the correct meaning of the phrase is the removal of one or more buds when in their early stages of development, the result being an increased size of the flowers which are produced from the buds left on the spike. The other method consists of waiting until the complete spike has fully opened all its flowers, and then removing one or more of them to enable a trade grower to submit specimens to a likely purchaser, or in order that an artist may have material from which to make a painting. This latter method can make no difference whatever to the size of the remaining flowers, and should not legally be termed "disbudding." Up to the present time no distinction whatever has been made with regard to this important point, the just and the unjust have suffered punishment in a similar way.

The year 1913 will see the much needed reform in operation. The Royal Horticultural Society has issued the following

resolution to the members of its Orchid Committee:—

“Awards will not be recommended to any plants the natural size and character of the flowers of which have been in the opinion of the Committee in any way improved through disbudding or dressing.”

Exhibitors will therefore be able to obtain awards for all plants, whether disbudded or not, so long as the flowers have not been unduly enlarged or improved beyond their natural state.

THE ESSEN ORCHID SHOW.

THE idea of holding the recent Orchid Show at Essen, Ruhr, originated with Baron Max von Fürstenberg, of Schloss Hugenpost, whose collection of species is considered to be the finest on the Continent. The Mayor of Essen and Dr. Goldschmidt, the well-known amateur, also took considerable interest. Mr. Linne, the Director of Essen Public Gardens, and Mr. Beyrodt, of Marienfelde, acted as organisers.

Baron von Fürstenberg's rich collection of species and hybrids occupied the whole of the Octagon Hall of the Museum. In the adjoining hall, Mr. Veerhoff, director of the famous gardens of Herr Krupp von Bohlen and Holbach, staged a magnificent group of home-raised plants, both species and hybrids.

Dr. Hans Goldschmidt (gr. Mr. Faulhaber) exhibited many choice species and hybrids, and a unique collection of *Anoectochili*, containing many rare and new species only to be found in his garden. These plants were exhibited in a large glass case, the back of which consisted of a pastel painting representing a view from Darjeeling on the Himalaya Mountains, the native home of many of the plants.

Mr. W. Herzog, grower to Herr Geheimrat Hammerschmidt, of Bonn, showed a very interesting series of Orchid seedlings which had been grown on scientific principles by the aid of fungus.

The Orchid trade was represented by Mr. Bohlmann, Hamburg; Mr. Hennis, Hilde-

sheim; Mr. Wolf, Düsseldorf; Mr. Beyrodt, Marienfelde; and Messrs. Charlesworth and Co.

THE PHYSIOLOGY OF FERTILISATION.

THE lecture given by Prof. F. Keeble at the Orchid Conference dealt with the physiology of fertilisation, a very interesting subject which in no small way concerns the Orchid hybridist. The foundations of our knowledge of fertilisation, remarked the Professor, were made over three-quarters of a century ago by Amici, who in 1830 discovered that pollen grains send out tubes which, after passing down the style, or column, fertilise the ovules. The male and the female organs, each consisting of a mass of cytoplasm containing a nucleus, thus fuse with one another and form a single cell, or zygote, which in due course gives rise to the embryo of the seed. The cytoplasm of the egg-cell is considerably larger than that of the male, or pollen, parent, although there is great similarity between the nuclei. It is not yet possible to say that all the characters of the offspring are equally contributed by the two parents.

We must recognise that fertilisation has a two-fold significance. On the one hand, it allows the formation of an individual which derives material from both parents; on the other hand, the male, or pollen, tube entering the egg-cell creates a certain stimulus which starts the latter into growth.

In support of this latter assertion the Professor mentioned how the egg-cells of sea-urchins may be made to develop by altering the chemical composition of the sea-water in which they are placed. And, also, how the unfertilised eggs of the frog may be made to develop by simply puncturing each one with a fine glass needle. It will, therefore, be seen that stimulation may be either chemical or mechanical.

It is well known that *Zygopetalum Mackayi* when fertilised with the pollen of *Odontoglossum crispum* yields only progeny in every way similar to itself; there is no sign of hybridity in the seedlings. The

probable explanation of the fact is that the ovules of the Zygopetalum have been stimulated into growth without being fertilised by the male, or pollen, parent.

Oncidium flexuosum, it has been said, cannot be fertilised by its own pollen. The flower withers prematurely and fails to set seed. Occurrences such as this are probably due to the poisonous effect which the plant's pollen has upon its own stigmatic surface. Such sterility may sometimes be overcome by immersing the pollen in water for a few hours, in order to remove the poisonous substance. It may not be improbable that the stigma has a poisonous effect on the pollen.

The lecturer concluded by stating that although our knowledge of fertilisation is as yet too imperfect for it to be of much use to the Orchid raiser, it may throw some light on the phenomena of sterility. We may anticipate the making of yet more wonderful mongrels than those which now delight the amateur, confound the botanist, and confuse the student of nomenclature.

ORCHIDS AT PALMERSTON NORTH, NEW ZEALAND.

PRIVATE owners of Orchid collections are few and far between in New Zealand. Nevertheless, I obtain as much pleasure from my comparatively small greenhouse as many of the important European growers do from theirs.

Up to the present success has fallen to my lot. My Orchid house is maintained as an intermediate one, and the artificial heat obtained from the hot-water pipes, together with the necessary shading and ventilation, render the structure quite suitable so far as the climate of our country is concerned.

My collection is composed of various *Odontoglossums*, varieties of *Cypripediums*, several *Cattleya* and *Lælio-Cattleya* hybrids, *Dendrobiums* in many varieties, and numerous *Oncidium*s. The latter genus is a favourite of mine, and at the present time *On.*

Cavendishianum and *On. tigrinum* are in flower and have well repaid me for my trouble.

I particularly admire the lovely blue flowers of *Vanda cœrulea*, and often wonder whether any of the many plants in English collections could be made to grow in New Zealand. The long voyage of six weeks would probably be too much for them. *Aerides odoratum* grows well in my intermediate house, and last season produced two fine spikes of bloom.

I have only to go a few miles out of Palmerston North to be in the thick, untouched bush with its beautiful undergrowth and tree ferns in countless numbers, many of which are as high as sixty feet. *Dendrobium Cunninghamii*, with its pale rose and cream coloured flowers, looks very pretty when growing in its natural position high up on the trees. One specimen which I recently found had stems over five feet in length. The flowers, an inch in diameter, are produced during November to February.

Pterostylis Banksii is another Orchid found near here. It grows in open paddocks and dies down each year. The curious hood-shaped flowers are green in colour and striped with white. *Acianthus Sinclarii* is a tiny, transparent-looking plant, which bears racemes of small greenish-white flowers during the month of August.

Gastrodia Cunninghamii is often found growing in damp bush. It is a strange looking plant, about two feet in height and with a thick, starchy root, frequently used as food by the natives. *Microtis porrifolia* is fairly common, and is also known as the onion-leaved *Microtis*. The flower spike bears from 20 to 80 very small green flowers.

Earina suaveolens is fairly plentiful in this district. The white flowers are not very large, but they are extremely sweet-scented, and when large plants, or a number of smaller ones, secure themselves to the bark of a tree the flowering mass is quite a picture. The months of April to June are those in which the best floral display is produced by this species.

I am somewhat alone in my hobby, and frequently lack the encouragement produced by a little friendly competition with

neighbouring amateurs. Nevertheless, the ORCHID WORLD keeps me in touch with the subject, and constantly reminds me that I, so many miles away, am a member of a closely united—in thought, if not in reality—fraternity of Orchid worshippers.

HOWARD C. EDWARDS.

Palmerston North,
New Zealand.

BRITISH ORCHIDS.

AT the meeting of the Linnean Society, held December 5th, 1912, the first communication was by Mr. E. J. Bedford, entitled "Notes on Two Orchids new to East Sussex: Further Notes on several rarer species of the Orchidaceæ," and communicated by Mr. C. E. Salmon, F.L.S.

The lecturer stated that he is engaged in obtaining a series of photographs of the British Wild Orchids, his intention being to secure photographs of every possible species *in situ*, as well as at closer quarters at home, when arranged against a plain background. During the season of 1911 he was fortunate enough to obtain two species not hitherto recorded for East Sussex. The first of these was the Brown-veined Orchid, *Orchis purpurea*, found in the Ouse district, near Lewes, in the month of May, by Mr. Herbert Jenner, of Lewes.

This interesting find was the prelude of another of perhaps even greater interest, for in the month of June the lecturer found a specimen of the rare Lizard Orchid, *Orchis hircina*, in the Cuckmere district, near Eastbourne.

This also proved to be a record for East Sussex, although a single specimen was discovered in West Sussex in 1907 near the border of the county. When discovered the specimen was only just coming into blossom, but it was decided to pick and take it home. The plant measured 12½ inches in height and doubtless would have grown higher had it been left. The flowers opened at the rate of three or four each day during the time it was kept indoors, and about a week after

the specimen had been picked all the flowers were open except those at the extreme tip.

It was at this stage taken back and temporarily fixed to its own stalk and photographed *in situ* on June 22nd (the Coronation day of King George V.). The plant did not produce a bloom during the past season (1912), although several leaves appeared, so it is hoped it may bloom again this season.

Earlier in the same year (1911) he had found a numerous colony of the Spider Orchid, *Ophrys aranifera*. In a circular space of about three yards radius he counted 65 specimens, and they were in this profusion for a considerable distance on each side.

The specimens which occur in Sussex are said to be *Ophrys aranifera* var. *fucifera*: great difficulty was experienced, however, in distinguishing the variety from the type which is said to occur in Kent and sometimes in Sussex.

During the past season (1912) he was able to photograph *in situ* the rare Late Spider Orchid, *Ophrys arachnites*, in the Folkestone district.

Another interesting species to be found in Sussex, although in decreasing numbers, is the Bog Orchid, *Malaxis paludosa*. From its size and position this is a difficult species to photograph *in situ*. There is little doubt that the specimen Darwin experimented with and mentioned in his "Fertilisation of Orchids" came from the same locality as the one shown.

He supposed he would be correct in calling the Fen Orchid, *Liparis Læselii*, one of the rarest of the order. Through the kindness of a distinguished botanist he was able to obtain a photograph of it growing during 1912, but was not at liberty to divulge the exact locality.

The last species mentioned was the Summer Lady's Tresses, *Spiranthes æstivalis*, which he was also able to show photographed as they grew.

His collection of photographs at present consists of 33 species and varieties out of a possible 44, and he should be very glad of an opportunity of adding to his collection any species not yet obtained.



Cattleya Schröderæ, flowering in the Dale Nurseries, Brampton, Ontario, Canada.

CATTLEYA SCHRÖDERÆ.

THE above photograph was taken last spring in the Dale Nurseries, Brampton, Ontario, Canada, where from 35,000 to 40,000 Orchids are grown for cut-flower purposes. *Cattleya* species predominate, and are in flower almost the whole year through, the forms including *Schröderæ*, *Mossiæ*, *labiata*, and *Trianæ*. The *labiata*s finish flowering about the first week in November, and during the same month *Trianæ*s commence to open their buds. *Cypripediums*, including *insigne* *Sanderæ* and *Maudiaæ*, are also grown, and a large importation of *Odontoglossum crispum* has recently been received. The Dale Nurseries include more than twenty acres of glass, all of which are devoted to the production of cut flowers. The illustration shows one side of a 100 ft.

house entirely devoted to *Cattleya Schröderæ*; many of the spikes carry four to seven flowers, and several of the plants twenty-two to thirty-six blooms. Last spring more than 5,000 flowers were cut for the Easter trade. Mr. W. J. Jones, for many years grower to Messrs. Hooley Bros., Southampton, has charge of the Orchid department, and in a letter recently received from him we learn that the house of *Cattleya Schröderæ* promises an even greater abundance of bloom during 1913, while an equally spacious house of *Cattleya Mossiæ* will produce vast quantities of flower at a later date. The ingenious method of breaking the fierce rays of the sun by means of a thin sheet of tiffany suspended from the roof of the house may be recommended to others who find their early spring flowers scorched at a time when it is too early in the year to adopt the summer shading.

THE APPLICATION OF GENETICS TO ORCHID BREEDING.

By MAJOR C. C. HURST, F.L.S.

(Continued from page 64.)

THE REMAKING OF A BLOTCHED "CRISPUM."

In 1909 the writer showed that the "blotched" character in *Odontoglossums* behaved as a Mendelian dominant to the "plain" character which was recessive. Since then further evidence has given ample confirmation. The logical consequences of this application of genetics to Orchid breeding lead one to support Mr. de Barri Crawshay's idea, expressed many years ago, that blotched "crispums" first appeared in a wild state through natural hybridisation with other species.

From the point of view of genetics a dominant character is due to the addition of a factor, while a recessive character is due to the subtraction of a factor. A blotched crispum, therefore, consists in the addition of a factor to the ordinary typical plain crispum. The question arises, how was this dominant blotched character added to the typical plain crispum? In order to illustrate the point we will take in hand the remaking of a blotched crispum by crossing an ordinary white "plain" crispum with one of the yellow blotched species that grows with *O. crispum* in Colombia, say *O. luteopurpureum*, the result will be, of course, the F_1 yellow blotched hybrid, known as *O. Wilckeanum*, yellow being dominant to white, and blotched to plain. This natural hybrid appeared in importations before it was first raised in gardens.

Next, we will re-cross this yellow blotched hybrid with another white plain crispum, the expected result as far as these two characters are concerned will be that in F_2 out of four plants we shall get on the average one yellow blotched, one yellow plain, one white blotched, and one white plain. Among the white blotched forms will be found blotched

crispums. There can be little doubt that is how the blotched crispums originated in a wild state by natural hybridisation.

Other crossings might, of course, give the blotched crispum, but it seems more likely that it should originate from this particular cross than any other, on account of the natural distribution of these forms, as estimated by their frequency in importations. Further confirmation may be found in the fact that so far all the imported blotched crispums that have been bred from have proved to be heterozygous to the blotched character, giving plain forms when mated together.

For instance, the blotched *O. crispum* Franz Masereel, *O.-c.* Leonard Perfect, *O.-c.* Lindeni, *O.-c.* Victoria-Regina, *O.-c.* Rossendale, *O.-c.* Mariæ, *O.-c.* Lucianii, *O.-c.* Crawshayanum, and *O.-c.* Alphonso all give a few plain forms when mated with other blotched forms, showing that each has only a single dose of the blotched character. This indicates that one of their parents was a plain crispum, otherwise some homozygous blotched forms would surely have turned up amongst them.

The next step for Orchid breeders to take, therefore, is to breed these heterozygous blotched forms *inter se*. On the average one out of three of the blotched forms produced in this way should be homozygous, or pure, with a double dose of the blotched character. These when bred from will give *all* blotched forms, whether mated with other blotched forms, or with plain forms.

It will, of course, be understood that the blotched character in *Odontoglossums* is a very variable one, the blotches vary in size, form and number, while the pattern varies with the species used. It would be an interesting study to work out the several factors that are no doubt concerned in the different

kinds of blotching. The plain form of *O. crispum* is, of course, often slightly spotted, especially on the lip. The yellow ground colour in *Odontoglossums* varies considerably in shade according to the species and variety used. Some of the bright yellow species are evidently heterozygous, carrying cream recessive, as may be seen in some of the F_1 results of yellow $\times$ white in certain primary hybrids where segregation into the two distinct shades, cream and canary-yellow, is evident. When a pure white ground appears in F_1 results of yellow $\times$ white, it is evidently due to the heterozygous nature of the wild yellow form used as a parent.

THE MAKING OF A SCARLET CRISPUM.

A large number of interesting problems have already been taken in hand by Orchid breeders, some of which bid fair soon to be successful, though, to the student of genetics, the results seem to be slow in coming to hand.

The question, for instance, of the making of a Scarlet Crispum by combining the self scarlet colour of *Cochlioda Nœtzliana* with the large size of *Odontoglossum crispum*. The making of a Scarlet *Cattleya* by combining the scarlet self colour of *Sophronitis grandiflora* with the large size and broad segments of the species of the labiata group of *Cattleya*. The making of a Yellow *Cattleya* by combining the yellow self colour of *Lælia Cowanii* with the large size and broad segments of the *Cattleya*. These and other problems equally interesting to Orchid breeders are, judging by the results recently presented, now well on the way to a solution.

There is no doubt that the application of the principles of genetics to these problems would not only help to hasten their solution, but would also save much wastage of mistaken matings. In the three particular problems noted above, the first crosses in F_1 all show a more or less incomplete dominance, both of the desired colour and size characters. In other words, the single dose of each factor present in the primary hybrid gives a different result from the double dose of each factor present in the pure parents. Thus the double dose of the factor present in the *Cochlioda*,

Sophronitis, and *Lælia* parents, produces the scarlet or yellow colour to perfection, whereas the single dose only of the factor present in the primary hybrids reproduces the scarlet or yellow colour more or less imperfectly.

The same thing happens in regard to the factor for size. The double dose of the factor present in the *Odontoglossum* and the *Cattleya* parents produces the large size desired, whereas the single dose only of the factor present in the primary hybrids does not. The simple solution of the problem, therefore, lies in choosing the particular matings that will give a double dose of each of the two characters that the Orchid breeder wishes to combine, in these cases the scarlet or yellow colour and the large size. It is obvious that this can be done simply by mating two of the F_1 hybrids together, and if the case is a simple one, the desired result should be secured in F_2 , on the average in one plant out of every sixteen raised.

From this it will be seen that the common practice of mating the primary hybrid back to one of its parents cannot be expected to succeed, because such a mating implies the presence of a single dose only of one of the two characters concerned. By such a mating one of the characters is secured by a double dose at the expense of the other which can only have a single dose. Further, the many attempts that have been made to secure the result by breeding from secondary and other complex hybrids only leads to unnecessary complications, because owing to segregation it is quite possible to lose the desired factor altogether in the second generation F_2 , and the securing of a double dose of it by means of such matings is a matter of considerable uncertainty, with the chances very much against the breeder.

In passing it may, perhaps, be useful to point out that the common practice of analysing Orchid hybrids of complex parentage in terms of fractions of their parents and ancestors is to be deprecated. In Orchid literature we often see it stated, for instance, that a certain hybrid contains $\frac{1}{8}$ A, $\frac{1}{8}$ B, $\frac{1}{4}$ C and $\frac{1}{2}$ D. In the modern light of genetics such statements are not only misleading, but in

most cases they must of necessity be erroneous. The simple fact of the segregation of characters in the second generation altogether upsets such a calculation.

So far, we have dealt with the three particular problems by applying the principles of genetics in a general way to enable the breeder to secure a definite result in the shortest possible time. Space will not allow one to deal with the interesting mass of minor details concerned in these three problems. One or two special points, however, may be noted. Judging from the F_1 results recently produced, it would appear that in order to get a true Scarlet Crispum, *Cochlioda Noëtzliana* should be crossed with an *Odontoglossum* with a white ground colour, e.g., *O. crispum* or *O. nobile*, and in order to avoid, if possible, the presence of purple sap in the segments it would seem advisable to use the albino *O. crispum xanthotes* and *O. nobile album* in preference to the tinged, blotched or plain forms.

In order to get a Crimson Crispum it would appear that *Cochlioda Noëtzliana* should be crossed with an *Odontoglossum* with a yellow ground, e.g., *O. triumphans* and *O. luteopurpureum*, and to avoid the dull purple tint in the crimson, the xanthic albinos *O.-t. Ajax* and *O.-l. Vuylstekeanum* might, perhaps, be used to advantage. The presence of some purple sap in the column of *Cochlioda Noëtzliana* may or may not complicate matters. It all depends whether the column colour is inherited independently of the rest of the flower or not; if a form can be secured in which the usual violet-purple colour in the column is absent this possible complication might be avoided.

In the making of a Scarlet Cattleya the elimination of the rose-purple sap of the Cattleya is equally important in order to get the true colour, and it would therefore seem advisable to use with the *Sophranitis* the albino forms, e.g., *Cattleya Mossiæ Wageneri* and *C. Gaskelliana alba*. If the (C) albinos of *C. Warneri* and *C. Schröderæ* are used care must be taken not to put them in the same experiment in which the (R) albinos of *C. Mossiæ* and *C. Gaskelliana* are used, otherwise the sap-colour will appear.

In place of *Sophranitis grandiflora*, the species *Lælia harpophylla* or *L. cinnabarina* might be used, but the result would be a lighter and more orange shade of scarlet.

In the making of a self yellow Cattleya, the species *Lælia Cowanii* or *L. flava* would appear to be the best to use. *C. Dowiana aurea* and *L. xanthina* being bicolors would be unsuitable for breeding selfs. It is rather curious that while the yellow colour of *C. Dowiana aurea* is recessive to the rose-purple colour of the Cattleyas, the yellow colours of *L. Cowanii*, *L. flava*, and *L. xanthina* are dominant, though in most cases the dominance is somewhat imperfect. The F_1 results suggest that the colour of the front lobe of the lip may be inherited independently of the rest of the flower. The bicolors *C. Dowiana* and *L. xanthina* give purple or crimson lips when mated with albinos, while *L. Cowanii* and *L. flava* apparently do not; but *L. flava* when mated with the coloured forms of certain species gives a crimson or purple lip, while with other species it gives a self yellow flower. *L. Cowanii* so far appears to give all yellow selfs with both coloured and albino forms.

In the making of a self yellow Cattleya, all these details will have to be carefully considered by the breeder in choosing his matings. It may be interesting to note that a rather curious point will arise in the making of these Scarlet and Yellow Cattleyas. Technically, according to the present rules, the Scarlet Cattleyas bred in the way suggested would belong to the genus *Sophranitis*, while the Yellow Cattleyas would be classed as *Lælio-Cattleya*. But, as the writer pointed out some years ago, the generic characters which separate Cattleya from *Lælia*, i.e., four pollen-masses and eight pollen-masses respectively, themselves behave as Mendelian characters and segregate in F_2 in the same way that specific and varietal characters do. Consequently, some of the Scarlet and Yellow Cattleyas raised in these experiments will have four pollen-masses only, and in that sense would be indistinguishable from the systematist's true Cattleya. Being homozygous they would also breed true to that character. In view of this it hardly

seems logical to call them *Laelio-Cattleya*, and if the Orchid breeder, for other reasons of his own, chooses to call these forms *Cattleyas*, in the circumstances it will be a rather difficult matter to deny him.

ECONOMICS AND EUGENICS.

The application of the principles of genetics to Orchid breeding brings out an economic point of considerable importance, the appreciation of which should save the breeder a considerable amount of time, trouble and expense. From what we have shown, it is evident that no useful purpose can be served by the indiscriminate matings of complex hybrids, which are far too common in Orchid breeding. From the economic point of view, it is extremely doubtful whether it is really necessary to go beyond the mating of primary hybrids in Orchid breeding. We have seen that any two good qualities can be combined in this way in the second generation, in a single experiment with two, three, or four species or genera.

If more than this be required, other parallel experiments can be carried out at the same time, and the respective results of the separate experiments can, if really necessary, be combined afterwards. For instance, experiment (1) might be carried out to make a Dark Scarlet *Cattleya* from *Sophranitis grandiflora*, while experiment (2) might be carried out at the same time to make an Orange Scarlet *Cattleya* from *Lælia harpophylla*. When these two shades of the Scarlet *Cattleya* are obtained in the second generation, they might be mated together in order to produce in the third generation a Scarlet *Cattleya* superior to both.

Another great advantage in the adoption of the method of parallel experiments will be that the special secondary hybrids obtained in this way will of necessity have a double dose of each of the two good qualities bred for, consequently they will be equally valuable for use as stud Orchids; being homozygous to the desired characters, they will breed true to themselves when selfed, and will give more definite and less variable results when crossed with one another.

The application of the principles of genetics to Orchid breeding leads one to conclude that from the economic and eugenic point of view, the only sound method to adopt in Orchid breeding is to make a fresh start, by selecting a choice stud of the best individuals of the best varieties of the best species of the best genera, due preference being given to those stud individuals that have already bred a winner of the F.C.C. at the R.H.S. and have also proved themselves to be homozygous in their good qualities. These selected stud Orchids should be combined by crossing in every possible way, in order to make superior primary stud hybrids. Finally, these superior stud hybrids can be combined in any way that the breeder may think fit, in accordance with the particular objects he may have in view.

ORCHID BREEDING.

I ATTENDED the recent Orchid Conference, and was much interested in Major Hurst's paper on the Application of Genetics to Orchid Breeding, and while appreciating its general excellence much of it is necessarily inferential and conjectural, and even were I wholeheartedly convinced that his premises were scientifically correct, I doubt their value in practical application.

For instance, how am I to apply the first principles of genetics to Orchid breeding? I have discovered a "character" in a flower that I want to continue in my hybrid, but this desirable character is associated with other undesirable characters that are also heritable. How am I to separate the undesirable characters from the desirable one in the hybrid? This is how Major Hurst becomes helpful: "When more than one heritable character is involved in the breeding problem, as usually happens in Orchids, the different kinds of individual plants become exceedingly numerous. One plant, for instance, may be homozygous for one character, heterozygous for another, and zerozygous for a third character, and so on. Each individual plant, however, has a definite germinal, or gametic, constitution, which can be ascertained by cross-breeding it with other

plants. In this way a factorial analysis of the plant can be made, and as regards each heritable character the plant will be found to be either homozygous, heterozygous, or zerozygous, and as such it will behave when bred from. Once the factorial analysis of a plant has been made all future breeding from that plant is reduced to practically a certainty."

This ascertaining of a plant's germinal, or gametic, constitution seems rather a formidable undertaking, and would surely end inconclusively. Major Hurst is not taking into consideration the heritable characters of the plant with which it is to be cross-bred, which might negative the value of any factorial analysis that would ensue. And after the factorial analysis had been made, surely any "certainty" in future cross-breeding would always be subject to modification by the plant with which it was mated.

Major Hurst says that no less than five different kinds of albinos may exist. The results of my own experience, and as far as my knowledge of the experience of other raisers goes, point to there being one kind of albino only, and it always breeds true whether selfed or crossed with another albino. But, as I have already pointed out in the ORCHID WORLD, if it be crossed with a pseudo-albino, of which there are many about, *all* the hybrids will be distinctly coloured. A *Cattleya Schröderæ* but very slightly flushed crossed with a white *Cattleya Mossiæ* reverted (or advanced?) so much that the seedlings were hardly distinguishable from a batch of typical *Cattleya Mossiæ*. A good many pseudo-albinos, which to the trained eye would have been readily distinguishable as such, have been used in crossing, but it is quite possible that purple sap might be present in the flower and not be visible. The shade of white in the flower is not of importance, and various shades of white, or green-cream and white, may be observed in the same flower as it develops to maturity and then fades away. The density of a flower has also much to do with the shade of whiteness.

I know of a good many crosses in different collections that have been made from so-called albinos, the results of which have

invariably been all coloured, but nothing has come under my notice to support Major Hurst's tables under "colour and albinism." I shall endeavour to collect further evidence on this point for publication in the ORCHID WORLD.

The single instance recorded of albino and coloured Orchids coming out of the same seed capsule is the *Cattleya* hybrid *Myra Peeters*, a cross between *C. Gaskelliana alba* and *C. Warneri alba*. It has always puzzled me—in the light of the foregoing—why this (I believe the first albino *Cattleya* raised) should have behaved in this way. It was raised in Mr. Peeter's nursery in Belgium, and I suggest some solution of the conundrum as follows: Perhaps two capsules were set on two *C. Gaskelliana alba*, one of which was not a true albino, and the seed was mixed and sown together; if the *C. Warneri alba* carried the seed, perhaps the pollen from a true and a false albino *Gaskelliana* were used; or perhaps the pollen from a true and a false albino *Warneri* were put on a true albino *Gaskelliana*.

Any of these crosses would give a simple explanation of the singular and unique results from this particular cross. In any case, this Belgian raised *Cattleya* is the only evidence to date in Orchids that gives any semblance of probability to the existence of Major Hurst's five different kinds of albinos.

I should like to point out that while the visible evidence of coloured sap in the foliage of a *Cattleya* proves conclusively that it is not an albino, the want of coloured sap is in no sense any guide as to its being one.

Major Hurst is on perfectly safe ground when he advocates "the making over again of the best hybrids, using as parents the best individuals of the best varieties of the best species of the best genera. The primary hybrids thus obtained would be pedigree hybrids, and the best individuals of these might be further utilised in accordance with the particular aims that the breeder may have in view."

This is exactly what the Orchid breeder who has sense and reason has for long been endeavouring to do. J. M. BLACK.



Photo by]

[F. Waldock

Dendrobium nobile virginale, a specimen with 220 flowers, as grown by Mr. H. G. Alexander, in the Westonbirt collection.

SOME EPIPHYTIC ORCHIDS.*

By H. G. Alexander.

HAVING been honoured by a request from the Council to read to-day a paper on the Cultivation of Orchids, I propose giving my observations on the treatment most essential to the successful cultivation of the epiphyte section, for the greater number of the really showy, useful and popular kinds are members of this extensive division of the family.

Speaking of Orchids generally there is, at the present day, not only a very remarkable development of the hybrids of artificial origin, a progression entirely brought about by the energetic work of our hybridisers, but also a

very visible and great improvement to be everywhere noticed in their cultivation. Nevertheless, there are a few epiphytes still responsible for much of the disappointment occasionally experienced in Orchid culture.

In support of this latter statement I will instance the *Cattleya*, *Lælia*, and *Dendrobium* genera, also *Phalænopsis*, *Ærides*, *Vandas* and other distichous kinds. Some of these epiphytes, notably the species and hybrids of *Cattleyas* and *Lælias*, the bigeneric *Lælio-Cattleyas*, *Sophro-Cattleyas* and *Sophro-Lælias*, the deciduous and evergreen kinds of *Dendrobium*, and also *Phalænopsis* and *Vanda cœrulea*, are, probably, the most beautiful and specially desirable of all

* Report of Paper read at the Orchid Conference, November, 1912.

Orchids. The majority of these are unequalled in the gorgeous character of their beautiful flowers, and when used either in a cut state for floral decoration, or when flowering plants are staged for exhibition, a distinct and rare effect is always produced, hence their constant advance in popular estimation.

Having enumerated some of the genera in which difficulties of cultivation are likely to be found, I may be expected to make a few remarks concerning the best method of growing these plants up to the high standard now desired in present day collections and at all our important horticultural shows.

In the cultivation of all plants there are many different roads to success, particularly so with Orchids. A special treatment cannot be judiciously applied to the plants generally, for one cannot be certain that the conditions and surroundings are in all cases precisely similar, and this fact renders the giving of definite advice to be extremely difficult.

However, I hope from my suggestions some practical hints may be derived for guidance in determining under what conditions these epiphytes succeed best permanently. I emphasise "permanently," for unquestionably cultivators are oftentimes deluded by success which is not of lasting quality. In support of this statement one may point to the luxuriant growth which Orchids of all kinds make when growing in soft, spongy material, leaf soil, for example; they do well for a few years, but subsequently lapse gradually into an enfeebled and unhealthy state.

The system of culture most nearly approaching that of Nature must, undoubtedly, be the best. In the growing or flowering of Orchids success or failure depends on several matters, heat, light, air and moisture being the main factors; to these the cultivator must give continual attention, using his mind as well as his hands. A uniform system of treatment is not always advisable: growing plants according to a schedule and without taking into consideration the peculiar characteristics of the house in which they are growing, in my opinion, frequently leads to an unsatisfactory result.

Nowadays much lighter houses are built for Orchid growing than was formerly the rule. Still, there are thousands of Orchids which have to be grown in houses that are darker than they should be. A conviction often forced upon me is that half the evils affecting Orchids under cultivation are directly traceable to want of sufficient light, either through the plants being too heavily shaded, or else the house being improperly constructed. Very often, on account of the structure being unfavourably situated, the light is intercepted by trees, or other objects in the immediate vicinity.

In instances where epiphytic Orchids, such as I have mentioned, occupy houses in which light is not present in sufficient quantity the growth is deceptive; deficiency of light, especially when accompanied with much artificial heat, usually causes increased development of the leaves and pseudo-bulbs. This very exuberant growth is sure to exhaust itself, and, in course of time, the plants gradually become debilitated.

When Orchids have to be grown in houses affording less light than the plants require plenty of air will to some extent make up the deficiency, but, as a natural consequence, an extra amount of air means slower growth. Any attempt, in an insufficient light, to hurry a plant is certain to end in failure. Light is a most essential element, and is so potent in its influence that not only will plants grown under it produce flowers more freely, but the enduring properties of the blooms are greatly increased, frequently to the extent of lasting twice as long as others grown under more or less darker conditions. Moreover, the plants are hardier, that is, they are not so susceptible to slight errors of treatment in others ways. Take, for instance, *Phalænopses*, *Vandas*, or any of the distichous leaved Orchids which are quite easy to cultivate under a dense shade during the summer months; their fresh, green appearance may be pleasing to the eye, but the growth made under such conditions is too susceptible to atmospheric variation. Should the temperature of the house drop a few degrees below the normal, or if the plants are removed for exhibition purposes, many of

the leaves, so ill-built, will, in all probability, become spotted.

I will not suggest that any of the previously mentioned Orchids will bear full exposure to light, but the cultivator's aim should be to control it in keeping with the plants' requirements. Shading should be employed to break or diffuse the light rather than actually obstruct the sunshine itself. This is not a difficult matter with movable blinds, easily rolled up or down on light rollers, and made of suitable material. Fixed shading of any description is not good in practice, for it shuts out the light so much needed by the plants during the morning and evening and many of the sunless days which we have in summer.

Concerning this matter of light for Orchids, the more I see of their cultivation, so much the more confident do I feel of the injury that can be done to them by overshading. I have always observed that all Orchids which flower while the plants are in full growth do so in a much more satisfactory manner when under the influence of a good light, especially is this noticeable with those of the *Cattleya* family.

Whenever I meet with plants in a more robust condition than usual I nearly always find that more light has reached them than many growers would consider needful. Instances of this kind are often noticed where such plants are usually in the hands of those who, although good general plantmen, profess to know little or nothing about Orchids. Hence has arisen that off-hand assertion, "all Orchids are easy of cultivation."

Another great requisite in the cultivation of epiphytic Orchids is a full and free ventilation, not only during the daytime, but also by night, whenever it can be managed without creating a draught. With Orchids in their natural conditions of growth air is ever present in quantity, for these plants not only grow on high rocks and branches of trees, but, in many cases, on trees which are isolated and exposed to a constant current of air. *Vanda cœrulea* may be mentioned as an example from the latter conditions.

Therefore, under cultivation, these Orchids, whose natural position is in the open, must

have plenty of air; in fact, it is absolutely necessary, for if there be any shortage in the supply of this very important element the plants cannot possibly acquire solidity in their various parts, a condition so essential to healthy existence. Judicious use, therefore, of the ventilators of the house is always important at all seasons of the year. Growth made out of season is often attributable to insufficient air on past occasions.

To give an abundance of air when the sun shines and to admit it only by a chink on dull days and by night are, to my mind, equally absurd. This close-shutting system, especially at night with a view to keeping up a desired temperature, produces on these Orchids an amount of mischief difficult to calculate. I never could see the reason why ventilators, if so beneficial during the daytime, should not be equally so during the night. Fresh air all night, with reasonable temperatures, must be more conducive to health and vigour than anything approaching a stuffy atmosphere. This cooler and more airy treatment at night is, I believe, more practised in present day culture than hitherto, but I am still of the opinion that it is not yet sufficiently appreciated. Whenever the outside temperature is not below 40 degrees and the low level ventilators are left open at night, the fresh, moist air is constantly streaming in, and not nearly the amount of damping down is needed to keep the air soft and genial.

Respecting the maintaining of suitable night and day temperatures, there is little doubt that these, speaking generally, are often kept too high. All Orchids require more or less heat, but many would be far better under cooler atmospheric conditions than are at present allowed. So sensitive are these plants to atmospheric influence, that no matter how well they are treated in other ways they cannot long continue in a satisfactory condition of cultivation unless a proper atmosphere is maintained about them. Perhaps it would not be correct to say "that which is pleasant to the senses is right for these plants," but, at the same time, one can usually tell, on entering a house, whether the

air has that soft, light and pleasant feeling so essential to their well being.

I never advise sticking close to a stated temperature, especially when the outside climatic conditions are unfavourable, having always found much better results accrue from working in accordance with the weather and by keeping the houses comfortably warm with the air in active circulation and not too heavily charged with moisture. In the growing of these Orchids the state of the atmosphere is ten times more important than any kind of compost for the plants to root in can possibly be.

Epiphytic Orchids are remarkable for the great variety of their flowers and foliage as well as for the life and partiality to certain substances of their roots. Everyone with a little experience is well aware how closely these plants are dependent upon their roots. In their absence, either through decay or other reason, it is useless to look for healthy growth or superior flowers.

This brings me to another important point. I am convinced that the reason why these epiphytic Orchids sometimes fail in the hands of certain cultivators is because of their practice of affording too much moisture to the roots. Presuming these plants are growing in pots or baskets in the ordinary way, and the usual present day rooting material is employed, there still remains to be answered the oft-repeated question: How often should certain Orchids be watered? This is a question impossible to answer.

Some terrestrial Orchids require a compost almost saturated with water, a condition totally unsuitable for epiphytes. The ability of this latter class of plant to take up little or much moisture is mainly determined by the amount of air they receive, and also by the light and description of the houses in which they are grown. Light and air naturally enable any plant to take up more moisture by means of its roots, but these organs of nutrition must be in a suitable medium. Any great excess of moisture causes young roots in course of formation to die prematurely, and oftentimes results in the death of the older ones.

The kinds of Orchids which I have mentioned require comparatively little water at their roots, the only exception being in the height of their growing season, for if furnished with plenty of live roots they seldom shrivel even when the compost shows scarcely a vestige of moisture. The roots already in existence continue to grow in the dry material, unmistakable evidence of the condition favourable to the health of the plant.

In nine cases out of ten the season's growth of epiphytic Orchids precedes root action by a longer or shorter period. In this matter of watering we should be guided by Nature, and only supply water in moderate quantities to the roots until it is seen by their activity that increased supplies are called for by the demands made on the plants by the developing growths. I very much doubt if there are any plants under cultivation that require more discrimination in the matter of watering.

When the roots of these Orchids require water, no matter at what stage of activity or season of the year, only enough should be given to maintain the plants in health, always avoiding that excess which causes the roots to decay. Rain water is preferable for all plants as being the purest and most natural. Particularly is this the case with epiphytes, for in their natural state they can never experience the effect of any other kind.

The question of whether any form of manure can with advantage be used for epiphytic Orchids is one of long standing. Let me say at once that, personally, I am opposed to its use, and have never been accustomed to utilise it, always considering it a risky proceeding with regard to rare and valuable plants. On the rare occasions when I have experimented with stimulants the effect on the plants has always been disastrous. So far as feeding is in any way concerned I feel convinced that these Orchids, being plants of comparatively slow as well as small growth, can only take naturally a limited amount of sustenance, and any attempt at increasing this by manurial aid is all but certain to prove harmful in the end.

Another matter in connection with the cultivation of these Orchids, and one in which some growers are liable to make mistakes, is the treatment during the resting period. This term "rest" is, I fear, often misunderstood. It does not imply a periodical shrivelling of the plant by withholding water and lowering the temperature, but more of what I may term a compromise between temperature and atmospheric condition.

The resting period of these Orchids takes place more or less during the winter, a time of year when the temperature is lower and evaporation is not so rapid, and it is then that the plants require less atmospheric moisture and water at the roots. It is principally on this point that a considerable amount of knowledge and experience is required to adapt the varying conditions so as to meet the needs of the different plants. For example, the distichous leaved section require more frequent watering during their inactive period than any pseudo-bulbous kinds. *Vandas*, *Phalænopses*, and similar kinds require just sufficient moisture in the rooting material to keep the foliage plump and firm.

Plants of this section which are overdried during winter will often lose many of their leaves when the sap begins to circulate freely in the spring. On the other hand, too much moisture when the roots are inactive leads to damping, spot, and other attendant evils. The impression existing in the minds of some growers that a severe drying of *Cattleyas*, *Lælias*, *Dendrobiums*, and other pseudo-bulbous kinds is necessary to induce them to flower is a great mistake.

Those Orchids that require keeping dry at the root during their season of rest benefit to an extent dependent on the conditions under which they have been grown. If the leaves and pseudo-bulbs are solid and stout in texture, especially those which are evergreen, the plants are, materially, better able to bear a lengthened period of drought without shrivelling to the extent which proves injurious to the foliage.

These, then, are my reasons for coming to the conclusion that in the culture of epiphytic Orchids heat, air, light and moisture are the

essentials of satisfactory cultivation. To each subject I have endeavoured to express some of my convictions as to how they can best be made use of in order to induce a satisfactory condition of growth under unnatural conditions. Nature cannot be improved upon, and our efforts must, therefore, be limited to an endeavour to imitate her ways. To what extent we succeed, or have succeeded up to the present, you all know. Any measure of success we have attained should only stimulate further endeavours.

There are, no doubt, some plants that all but refuse to conform to the artificial conditions inseparable from cultivation, but it cannot be said generally that these are tender or unmanageable. On the contrary, it has been proved that when properly cared for they continue to thrive and keep up a healthy existence, sure evidence that observation and attention on the part of the cultivator have been well applied. We have all experienced the peculiar satisfaction of attaining a desired object when success or failure has been hanging in the balance.

It requires, however, no great amount of observation to see that these epiphytes, which will often bear a great amount of bad treatment before being killed outright, must have their nature studied and be given treatment suitable to their requirements before they are capable of being grown to the healthy and vigorous condition so much desired. Plants that suffer from either neglect or mismanagement must obviously be long in recovery, although death may probably be their untimely end.

PHALÆNOPSIS INTERMEDIA PORTEL—At the Meeting of the Royal Horticultural Society, December 17th, 1912, a Lindley Medal was awarded to Mr. A. Dye, gardener to the Right Hon. Lord Rothschild, Tring Park, for a magnificent plant of this species which had been grown at Tring Park for more than 30 years. It produced three large-branched spikes, with 185 flowers. The largest spike had 13 branches with 84 flowers, the next largest 7 branches with 61 flowers, and the smallest 5 branches with 40 flowers.



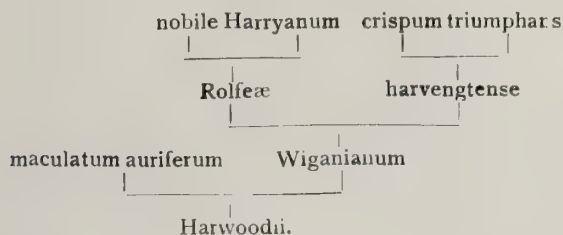
ODONTOGLOSSUM HARWOODII, "The Shrubby var."

(*O. maculatum auriferum* × *O. Wiganianum*)

F.C.C. R.H.S. September 26th, 1911.

ODONTOGLOSSUM HARWOODII.

(See Coloured Plate.)



IT would be difficult to find an *Odonoglossum* more distinct in colour and labellum markings than *Harwoodii*. Only three seedlings of this remarkable cross were raised by Mr. Charlesworth. The first to flower was illustrated in the *ORCHID WORLD*, July, 1912; a coloured plate of the "Shrubbery variety" is included in the present issue; and the third seedling is, as yet, a small plant, not likely to flower for several years. The bright golden-yellow colour is derived from the triumphans and maculatum parents, but the latter, on account of its auriferous nature, seems to have had the strongest influence. The handsome blotches on the labellum of this hybrid are another interesting feature, for besides the elegant appearance which they impart to the flower their origin is, at present, quite unaccountable. *Od. Uro-Skinneri* has produced somewhat similar markings in hybrids obtained by its use, and it may not be improbable that all spotted Central American

Odonoglossums will have a similar influence over their near Colombian relatives.

Both of the flowered plants of *Harwoodii* are now in the well-known collection of F. Menteith Ogilvie, Esq., The Shrubbery, Oxford, where they have as companions many other choice and beautiful hybrids.

CONFERENCE REMARKS.

Sobralias will grow well in the warm part of an *Odonoglossum* house, and in this situation have flowered splendidly every year.

Flowers of *Vanda gigantea* and the fleshy *Phalænopses* of the *Luddemanniana* section do not fade when fertilised, but only lose their colour.

Old back bulbs have a detrimental effect on the plant, and should be removed, allowing, of course, three or four healthy bulbs to support the new growth.

Manurial aid is not necessary for Orchids, although a few terrestrial kinds, such as *Cymbidiums*, might receive some benefit from occasional weak doses.

Orchid houses should be well built in open, light and airy positions. Failures were often due to lack of these essential points, and not always for want of care on the part of the grower.

The finest results in cultivating Orchids were obtained when the natural conditions were reproduced as near as circumstances would allow.

ROYAL HORTICULTURAL SOCIETY.

December 3rd, 1912.

MEMBERS of the Orchid Committee present: J. Gurney Fowler, Esq. (in the chair), Mr. James O'Brien (hon. sec.), Sir Jeremiah Colman, Bart., Sir Harry J. Veitch, Messrs. Gurney Wilson, J. Wilson Potter, R. G. Thwaites, F. Sander, R. A. Rolfe, T. Armstrong, A. McBean, C. H. Curtis, W. Cobb, J. Charlesworth, J. Cypher, W. H. Hatcher, J. E. Shill, H. G. Alexander, A. Dye, W. P. Bound, W. Bolton, de B. Crawshay, and J. S. Moss.

Lieut.-Col. Sir George Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), exhibited the unique *Vanda cœrulea* Sanderæ with two spikes of clear magenta-pink flowers, having very little trace of the usual blue. It received a First-class Certificate, November 22nd, 1910.

Messrs. Jas. Veitch and Sons, Chelsea, received a Silver Flora Medal for an interesting exhibit of *Zygopetalum Mackayi*, which had been raised from seed obtained by crossing this species with *Odonoglossum*

crispum; no sign of the latter parent was visible.

Messrs. Sander and Sons, St. Albans, were awarded a Silver Flora Medal for an attractive exhibit of excellent *Cypripediums*, the rare *Govenia Gardineri*, *Lycaste lanipes*, several *Cattleya* and *Lælio-Cattleya* varieties, and other hybrids.

H. T. Pitt, Esq., Rosslyn, Stamford Hill, obtained a Silver Banksian Medal for a very pretty group of various species and hybrids, including *Odontoglossum ardentissimum* "Pitt's var.," *Miltonia Bleuana*, the rare *Maxillaria Hubschii*, and many good *Lælio-Cattleyas*.

Messrs. J. Cypher and Sons, Cheltenham, secured a Silver Banksian Medal for a well-arranged group containing *Lælio-Cattleya Rubens*, the white *Calanthe Harrisii*, *Zygopetalum crinitum*, and a dark form of *Lælia anceps Schrödera*.

Messrs. J. and A. McBean, Cooksbridge, showed the new *Cymbidium Doris* and a very fine form of *Wiganianum*. Several promising *Cattleya* seedlings and *Cypripediums* were also exhibited.

Messrs. Charlesworth and Co., Haywards Heath, staged a number of attractive *Cypripediums*, in the centre of which was a grand specimen *Angræcum sesquipedale*.

Messrs. Hassall and Co., Southgate, exhibited a selection of choice *Cypripediums* and a good specimen of *Vanda suavis*.

E. H. Davidson, Esq., Orchid Dene, Twyford, staged *Lælio-Cattleya Myrrha* (L.-C. *Gottoiana* × *C. aurea*), sepals and petals primrose-yellow, the latter freckled with rose at the tips. Lip dull purple.

His Grace the Duke of Marlborough, Blenheim Palace (gr. Mr. Hunter), sent *Cypripedium Beatrice* (*aureum Hyeaenum* × *Memoria Jerninghamiæ*), a large flower with the white dorsal flushed in the centre with purple.

J. Gurney Fowler, Esq., Glebelands, South Woodford, exhibited the elegant *Cypripedium Leeaenum* "J. Gurney Fowler," *Odontoglossum Lambeauianum*, and *Odontioda Latona*.

Messrs. Stuart Low and Co., Bush Hill Park, Enfield, staged *Cypripedium Eva*

(*aureum Hyeaenum* × *Memoria Jerninghamiæ*).

Messrs. Swan and Price, Keyfield Nursery, St. Albans, staged a small group of choice *Cypripediums*.

AWARDS.

FIRST-CLASS CERTIFICATES.

Lælio-Cattleya Golden Oriole "var. Ruby" (L.-C. *Charlesworthii* × *C. aurea*), from Lieut.-Col. Sir George Holford, K.C.V.O., Westonsbirt (gr. Mr. H. G. Alexander).—A very remarkable and beautiful result, in which the yellow flower is almost covered with rich claret-red colour, the petals being more heavily covered than the sepals.

Odontioda Latona "Fowler's variety" (*Odontioda Bradshawiæ* × *Odontoglossum crispo-Harryanum*), from J. Gurney Fowler, Esq., Glebelands, South Woodford.—A very surprising result in which the scarlet-red colour of the former parent is almost eliminated. The ground colour is white, the sepals and petals having a broad rose margin, the inner parts heavily blotched with mauve having a slight reddish tinge. The lip has a large reddish blotch, and the crest is yellow.

AWARDS OF MERIT.

Cypripedium Viking (*Buchanianum* × *illustre*), from Lieut.-Col. Sir George Holford, K.C.V.O.—A very distinct hybrid having a broad, wax-like dorsal sepal with a violet-purple band up the centre. Petals and lip Indian yellow tinged with brown.

Cypripedium Eurybiades (*Euryades* × *Alcibiades*), from Sir Trevor Lawrence, Bart., K.C.V.O., Burford.—A large, bold flower having a pure white dorsal marked with emerald-green at its base, and evenly spotted with purple. Lip and petals yellowish and tinged with dark purple.

Sophrocattlælia Carna (L.-C. *Cappei* × *S.-L. heatonensis*), from Messrs. Charlesworth and Co.—A very remarkable combination of coloration, flower of large size, and exhibiting varied tints of bright magenta-rose.

CULTURAL COMMENDATION

to Mr. W. H. White, Orchid grower to Sir Trevor Lawrence, Bart., for a fine specimen of *Sigmatostalix radicans*.

December 17th, 1912.

MEMBERS of the Orchid Committee present : J. Gurney Fowler, Esq. (in the chair), Mr. J. O'Brien (hon. sec.), Sir Harry J. Veitch, and Messrs. T. Armstrong, A. McBean, F. J. Hanbury, C. H. Curtis, W. H. Hatcher, J. Shill, H. G. Alexander, A. Dye, Stuart Low, W. H. White, J. Charlesworth, W. Bolton, Gurney Wilson, and de Barri Crawshay.

Sir Trevor Lawrence, Bart., K.C.V.O., exhibited *Cymbidium gattონense* (Tracyanum × Lowianum), a strong growing plant.

Lieut.-Col. Sir George Holford, K.C.V.O., showed *Cypripedium Artemis* (nitens × Fairrieianum), a clear, greenish-yellow flower with drooping petals.

Clement Moore, Esq., Hackensack, N.J., U.S.A., staged *Cattleya A. Dimmock* (aurea × Lawrenceana). See ORCHID WORLD, page 13.

Francis Wellesley, Esq., exhibited *Cypripedium Delhi* (insigne Harefield Hall × Earl of Tankerville), a very pleasing flower.

H. S. Goodson, Esq., staged *Odontoglossum Prince Albert*, with reddish-brown markings on a white ground; *Od. St. Peter* (Rolfæ × amabile); *Od. Phœbus* (Phœbe × Vuylstekei), with crimson-red flowers; and *Od. St. Mirim* (ardentissimum × Pescatorei).

Messrs. Charlesworth and Co. showed *Oncidium hybridum* (tigrinum × lamelligerum) with chrome-yellow lip and chocolate-brown sepals.

O. O. Wrigley, Esq., exhibited *Cypripedium Mrs. Harry Bruce* (Sallieri virens × Thompsonii), the large flower yellowish-green, dorsal margined with white.

Messrs. Stuart Low and Co. staged *Lælio-Cattleya meirelbeckense* (L. Iona × C. aurea), reddish-terra-cotta with maroon lip.

Richd. G. Thwaites, Esq., exhibited *Odontoglossum Thwaitesæ* (Rossii rubescens × Harryanum), flowers resembling the former parent.

AWARDS.

FIRST-CLASS CERTIFICATES.

Sophrocattlælia Miss Edith d'Abrew var. "Thisbe" (S.-L. heatonensis × C. Iris), from F. Menteith Ogilvie, Esq., The Shrubby,

Oxford.—A very wonderful hybrid in which the whole flower is a bright blood-red colour, the lip slightly darker than the other segments. The underlying yellow pigment derived from the C. Iris is faintly visible on parts of the sepals. The original plant of this parentage was shown by R. le Doux, Esq., Manchester Orchid Society, November 30th, 1911.

Cypripedium Demeter (G. F. Moore × Thompsonii), from Lieut.-Col. Sir George Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander).—A large, bold flower with the dorsal sepal marked with dark purple spots, the broad petals rich brown.

AWARDS OF MERIT.

Cypripedium Sir William Chance (Thompsonii × Memoria Jerninghamiæ), from F. Wellesley, Esq., Westfield, Woking.—A very distinct flower in which the white dorsal has purple and brown central lines, the broad petals yellow with an over-tint of brown.

Sophro-Cattleya westfieldensis (C. labiata × S.-C. eximia), from F. Wellesley, Esq.—The whole flower is almost uniform in colour, being of soft rose-purple.

Odontoglossum scintillans "Orchid Dene var." (Rossii × Wilckeanum), from E. H. Davidson, Esq., Twyford.—Flowers of a rich rose-purple, petals spotted, lip with large crimson blotch under the yellow crest.

Oncidioda cinnabarina (C. Nœzliana × O. monachicum), from Messrs. Charlesworth and Co.—An interesting hybrid with a many-flowered spike of red flowers, the apex of the lip being yellow.

Odontoglossum eximium "J. Lakin," from E. H. Davidson, Esq.—Flowers handsomely blotched. The spike carried 14 blooms.

Cypripedium Idina (insigne Harefield Hall × Countess of Carnarvon), from Messrs. Veitch and Sons.—Flower very large with the broad dorsal sepal improving on the former parent.

Cattleya Tityus (Enid × Octave Doin), from H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. G. Day).—The large flower of this elegant hybrid has broad segments of rose-colour, the lip purple.

Odontoglossum Jasper, from J. Gurney Fowler, Esq.—Flowers well formed and with a bright rose-purple ground colour, the even spotting being effective.

A small Lindley Medal was given to Mr. Dye for a well-grown plant of *Phalænopsis intermedia Portei* which had been in cultivation for a period of 32 years.

CULTURAL COMMENDATION

was awarded to Mr. W. H. White for a specimen *Platyclinis uncata* with 68 flower-spikes.

MANCHESTER ORCHID SOCIETY

November 28th, 1912.

MEMBERS of the Committee present: Z. A. Ward, Esq. (in the chair), Messrs R. Ashworth, J. Bamber, J. C. Cowan, J. Cypher, J. Evans, W. Hatcher, W. Holmes, J. Lupton, D. McLeod, W. Morgan, C. Parker, F. K. Sander, H. Thorp, A. Warburton, and H. Arthur (Secretary).

A Silver-gilt Medal was awarded to R. Ashworth, Esq., Newchurch. A Large Silver Medal to Z. A. Ward, Esq., Northenden; Col. J. Rutherford, Blackburn; A. Warburton, Esq., Haslingden; J. McCartney, Esq., Bolton; S. Gratrix, Esq., Whalley Range; A. E. Penny, Esq., Preston; Messrs. Cypher and Sons, Cheltenham. A Large Bronze Medal to Rev. J. Crombleholme, Clayton-le-Moors; and a Special Vote of Thanks to O. O. Wrigley, Esq.

Other exhibitors included W. J. Hargreaves, Esq., Burnley; F. A. Hindley, Esq., Bradford; Messrs. Sander and Sons; Messrs. A. J. Keeling and Sons; and Messrs. Stuart Low and Co.

AWARDS.

FIRST-CLASS CERTIFICATE.

Cypripedium Maudiae var. *John Martendale* Gratrix, a large handsome flower of brilliant colour, from S. Gratrix, Esq.

AWARDS OF MERIT

Cypripedium Mary Gratrix, from S. Gratrix, Esq.; *Cyp. Draco* and *Od. crispum* "Bulgar," from Z. A. Ward, Esq.; *Cyp. Strelsa*, from

W. R. Lee, Esq.; *Cyp. Bulgar*, from Wm. Thom, Junr., Esq.; *Lycaste cruenta*, from Messrs. A. J. Keeling and Sons.

Botanical Certificate to *Eria* species, from Messrs. Keeling and Sons.

December 5th, 1912.

MEMBERS of the Committee present: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, J. Bamber, J. Cypher, A. Hanmer, W. Holmes, J. Lupton, D. McLeod, C. Parker, Z. A. Ward, A. Warburton, and H. Arthur (Secretary).

A Gold Medal was awarded to Mr. E. Rogers, gardener to O. O. Wrigley, Esq., Bury, for the meritorious group exhibited by him at the previous meeting.

Large Silver Medals were awarded to A. Warburton, Esq., Haslingden; Z. A. Ward, Esq., Northenden; R. Ashworth, Esq., Newchurch; S. Gratrix, Esq., Whalley Range; Col. J. Rutherford, M.P., Blackburn; and Messrs. Cypher and Sons, Cheltenham.

A Silver Medal was granted to J. McCartney, Esq., Bolton; and Bronze Medals to G. H. Peace, Esq., Monton Grange; and F. A. Hindley, Esq., Great Horton.

Wm. Thompson, Esq., Walton Grange; Mr. H. Arthur, Blackburn; Messrs. Sander and Sons, St. Albans; and Messrs. A. J. Keeling and Sons, Bradford, also exhibited various plants.

AWARDS.

AWARDS OF MERIT.

Cypripedium Lion (*Boadicea* × *Sallieri Hyeatum*) and *Cypripedium Queen Maud* (*Harefield* × ?), from S. Gratrix, Esq.

Cypripedium Cynosura (parentage unknown), from R. Ashworth, Esq.

Epidendrum vitellinum autumnale, from Wm. Thompson, Esq.

FIRST-CLASS BOTANICAL CERTIFICATE.

Masdevallia cucullata, from A. J. Keeling and Sons.

CULTURAL CERTIFICATES.

Mr. A. Dalgleish, gr. to A. Warburton, Esq., for *Cypripedium insigne* "MacNabianum."

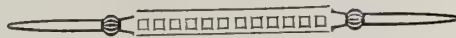
Mr. J. Howes, gr. to Wm. Thompson, Esq., for *Cypripedium Our King*.

Vol. 3.

THE ORCHID WORLD.

No. 5.

FEBRUARY, 1913.



NOTES.

MAXILLARIA FUCATA.—Those who cultivate this attractive species will recognise in the bloom the truth of Reichenbach's words when he first saw the flower. He remarked: "I could not help remembering some harlequins I had seen with the paint not quite washed off their faces."



CATASETUM DARWINIANUM.—In the collection of photographs shown at the Royal Horticultural Society, January 7th, by Mr. C. P. Raffill, was one of *Catasetum Darwinianum* bearing three kinds of flowers on the same spike. The three upper ones were male, the lower pair being female, one with the lip anterior, and the other posterior.



ORCHIDS OF WESTERN AUSTRALIA.—A recent issue of the Journal of the Linnean Society contains "Additions to the Flora of Western and North-Western Australia," by Dr. K. Domin, Professor of Botany in the Bohemian University at Prague. The species and varieties in the Orchidaceæ consist of *Thelymitra*, 4; *Diuris*, 4; *Microtis*, 1; *Pterostylis*, 1; *Lyperanthus*, 1; *Glossodia*, 2; and *Caladenia*, 12. *Caladenia Dorrienii*, a new species figured and described by Dr. Domin, is named in honour of Capt. A. A. Dorrien-Smith, who discovered the plant when on a botanising expedition to West Australia, October, 1909.

VANDA CÆRULEA ALBUM.—Flowers of a beautiful variety of this species have been received from Capt. Robert Twiss, Bird Hill, Limerick. The plant consists of four growths, and has been under cultivation in this collection for many years. Last season it produced eight strong spikes, one of which had 15 flowers. These blooms are well-proportioned and, with the exception of a light blue pigment on the lip, are pure white, the variety coming true every year. The apical flower differs from the others in having a white lip, but this may probably be due to some irritation of the stigmatic surface or of the pollen, it being a noticeable fact that the colour of flowers rapidly fades as soon as pollination is effected. One may reasonably infer from this that colour has for its main object the attraction of insects for the purpose of pollination.



LÆLIA JESSICA.—An example of this pretty hybrid between *L. Jongheana* and *L. Coronet* (*cinnabarina* × *harpophylla*) comes from the collection of Eustace F. Clark, Esq. In size, it measures four inches across both petals, the lip prettily frilled at the margin, and with the shoulders openly displayed. The particular interest attached to this flower is its bright ochre-yellow colour, which is denser on the labellum, largely owing to the *Jongheana* influence, for, as is well known, this latter species has elegant yellow coloration of its

labellum. A few of these yellow flowering hybrids produce a most pleasing effect when arranged in a group of large mauve and purple tinted flowers.



PARTHENOGENESIS IN ZYGOPETALUM MACKAYI.—The well-known fact that *Zygopetalum Mackayi* when pollinated with *Odontoglossum crispum* produces seedlings which appear to be in every way identical with the *Zygopetalum* parent has long been known. Mr. J. S. Moss, of Bishop's Waltham, acquired one of these plants and again pollinated it with *Od. crispum*; the seedlings flowered in due course, and were precisely similar to the mother parent. Not content with this second conclusive result Mr. Moss again set to work and raised a third generation, the flowers of which also showed no other evidence than that of *Zygopetalum Mackayi*. Still one more attempt has been made to produce a hybrid between these two species, Mr. Moss informing us that he has now seedlings of the fourth generation. It is worthy of note that all the above plants are really the species known botanically as *Z. intermedium*, which often does duty in gardens for the rare and smaller flowering true *Z. Mackayi*, easily distinguished by its lip being entirely without hairs. It seems quite apparent that no actual hybridisation takes place, the application of the *crispum* pollen in some way stimulates the ovules into growth, and nothing but the *Zygopetalum*, pure and simple, is produced.



ODONTOGLOSSUM EVA.—Flowers of this pretty hybrid between *cirrhosum* and *Kegeljani* come from the collection of C. J. Lucas, Esq., Warnham Court, Horsham. The ground colour is golden-yellow, and the segments are handsomely marked with chocolate. The spike carried 28 flowers.



MR. G. P'ANSON.—The employés of Messrs. Charlesworth and Co. have presented Mr. P'Anson with an oak cabinet on the occasion of his leaving the firm. Mr. P'Anson has

made Orchids a life-long study, and he will be pleased to hear from anyone requiring his services as grower in either private or trade collections.



Ghent Exhibition, 1913.—The following English Orchidists have been selected to act as members of the Jury at this important quinquennial exhibition:—Sir Jeremiah Colman, Bart., Sir Harry Veitch, Sir Fred. Moore, H. G. Alexander, C. H. Curtis, de Barri Crawshay, Stuart Low, J. O'Brien, H. T. Pitt, F. Sander, and Gurney Wilson.—*La Tribune Horticole*.

LÆLIA GOULDIANA.

A few days prior to Christmas Day, 1887, I walked into the nursery of Messrs. Siebrecht and Wadley, in New York, accompanied by Fostermann, one of the most successful of the Sanderian Orchid collectors, but who, at that time, was manager for Messrs. Sander's branch establishment at New York. Fostermann had previously told me that Messrs. Siebrecht and Wadley had in flower a *Lælia* which had been seen by both British and American Orchidists, none of whom could determine whether it was, or not, a variety of *Lælia autumnalis*.

When Mr. Siebrecht ushered me into a long greenhouse containing hundreds of spikes of this *Lælia* laden with the most brilliant crimson-purple flowers I was, to say the least, greatly astonished. I saw at once that this was our new *Lælia*, for one cannot easily mistake the plant of *L. Gouldiana*; it is distinct from all others, and quite dissimilar to *L. autumnalis* in its round, elongated, erect pseudo-bulbs, and the stiff, tapering channelled leaves.

I was at once convinced of the identity of the plant with our own, the result being that I purchased Messrs. Siebrecht and Wadley's stock. I am perfectly sure this is a distinct species, very local. My first sight of this beautiful *Lælia* in flower was one never to be forgotten, the great number of flowers, so rich in colour, and produced in mid-winter, made a lasting impression upon me.

JOSEPH GODSEFF



Lælia Gouldiana, flowering at Messrs. Sander & Sons, St. Albans.

LÆLIA GOULDIANA.

THE CHRISTMAS LÆLIA.

THE above photograph shows one of Messrs. Sander and Sons' houses as it appeared on Christmas Day, with more than 7,000 flowers of *Lælia Gouldiana*, without doubt the finest display of this species ever seen. The spikes carry from four to seven flowers, and there are a few extra strong ones which have as many as eight. This is their second season of flowering after importing, and owing to the dulness of the past summer, the result may be considered satisfactory in every way. The plants will gain considerably in strength during the present year, which will result in an even better crop of flowers being produced next Christmas.

This Orchid is undoubtedly one of the very best for cut flowers, for not only does it bloom at Christmas and the New Year, a time when Orchid bloom is in the greatest demand, but it gives such an abundance of its large,

glowing crimson-purple flowers on comparatively small plants.

Mr. Forget, one of Messrs. Sander and Sons' expert collectors, recently found this Mexican *Lælia* growing on rough-barked and sturdy *Acacias*, although a few were also found growing on exposed rocks and on a species of *Quercus*. The plants form enormous masses, so large that many of them had to be divided into portable pieces before they could be placed on the backs of mules previous to transportation to the coast. The root system is particularly vigorous.

Mexican *Lælias* include *anceps*, *autumnalis*, *albida*, *furfuracea*, *grandiflora*, *rubescens*, and *Gouldiana*. Their natural climate allows them plenty of sunshine and fresh air, and for cultivation in this country conditions very similar to those found successful for *Cactus* growing will prove beneficial, although a very slight amount of shading may be required during the middle of summer, but then only for a few hours during the brightest part of the day. Plenty of ventilation, both by night and day, should always be given during the growing season and ripening time of the bulbs.

LISSOCHILUS HORSFALLII.

THIS terrestrial Orchid of Uganda is known to Orchid fanciers in England by an occasional specimen exhibited. Out here it is found naturally in swamps, but the photographs shown are of a specimen grown in the soil of an earth verandah; in conditions absolutely opposite to those the plant enjoys in its natural surroundings.

The tuber was obtained in a dormant state from a swamp, and laid on the verandah to dry. It inadvertently slipped out of sight, and, to my surprise, a very fine growth soon made its appearance. The plant received no care, and, although growing in such a dry place, was never watered. In due time two fine trusses of flowers were produced.

The plant produced a tuft of plicate leaves 3 feet long and 4 inches wide. As soon as the leaves were full-grown the flower spikes appeared. These were two in number, each 8 feet long, and bore 48 and 47 flowers.

The first flowers opened on August 10th and the last on October 30th, a range of ten weeks, during which time the plant was a glorious object. The flowers are 2 inches in diameter. Petals a pale rose colour, lip free, with large lobes, green, streaked with purplish-crimson.

The photograph shows two seed pods on one spike. These were obtained by artificial fertilisation, for I found that although flowers in a swamp 200 yards away were freely fertilised, evidently a swamp insect was the

agent, and this insect did not frequent the hill-top where my house is situated. This leads one to believe that this Orchid is not really a swamp-loving plant, but only



Lissochilus Horsfallii.

succeeds in living and multiplying there because of the presence of its fertilising agent. The great superiority of my plant, in luxuriance and floriferousness, lends weight to this opinion.

It would be interesting to learn how English growers treat their plants, and to hear the result of trying more ordinary cultivation, if swamp conditions are copied by them at present.

E. BROWN, F.L.S.,
Kivuvu, Uganda.

The adjoining photograph shows one of the flower spikes of the vigorous plant depicted on the preceding page. *Lissochilus Horsfallii* bears the name of Mr. Horsfall, of Bellamour Hall, Staffordshire, with whom the species first flowered in 1864, and although plants may have been imported since this date, it does not appear to have flowered again in England until 1906, when the Right Hon. Lord Rothschild exhibited four flowering specimens at the Royal Horticultural Society, March 6th, and received a Silver-gilt Flora Medal, with a First-class Certificate for the species. These plants were imported from West Africa by the Hon. Walter Rothschild, whose method of culture consisted in treating them as river-bank plants by growing the tubers in tubs of water, to which frequent applications of manure-water were given. The resulting flower-spikes were five feet in height and carried a large number of blossoms. In the early part of the year 1910 we hear of this species flowering at the Royal Gardens, Kew, when a flower-spike six feet in height was produced.



BULBOPHYLLUM AND CIRRHOPETALUM.—The species of *Bulbophyllum* and *Cirrhopetalum* are so allied by cross affinities, states Sir Joseph Hooker in his "Flora of British India," that the two genera might well be regarded as one. My keeping them apart is due to the consideration of convenience, and the fact that all my attempts to commingle



Lissochilus Horsfallii, the flower spike.

the species of both have resulted in a chaotic aggregate, with most unsatisfactory sectional characters; in fact, a far less natural result than the keeping them apart. The species of *Cirrhopetalum* are far the most difficult of the two, as regards analysis from dried specimens, on account of the delicacy of the perianth, and the fact that the length, form, colour, and consistence of the lateral sepals alter greatly during development. *C. viridiflorum* and *C. Blepharistes* have the longer dorsal sepal of *Bulbophyllum*.

DENDROBIUM BRYMERIANUM.

WHEN *Dendrobium Brymerianum* flowered for the first time nearly forty years ago in the collection of Mr. W. E. Brymer, of Islington House, near Dorchester, it created one of those sensations which occasionally diffuse themselves throughout the Orchidaceous world. A brief and interesting story in connection with the introduction of this species is told in Messrs. Sander and Sons' monumental work "*Reichenbachia*."

"This species is a native of Burmah, and Orchid collecting in that country some years ago was by no means an agreeable occupation. The collectors had a warm time of it in more ways than one, owing to the rivalry of the missionaries established there, and who to some extent knew the value of Orchids. They did not accord a genial welcome to a stranger in search of them; indeed, they forbade him to leave the town of Bhamo, and he was, therefore, obliged to hire natives to procure plants. It may be readily imagined that the collector was not in the best humour, having nothing to do all day long but flying from one to another of the four gates, by which the town of Bhamo was entered, in the hope of seeing one of his agents with the much-wished-for plants. The proceedings were occasionally enlivened when one of the said agents was intercepted just outside the gates, and had all his plants taken away from him. These little incidents often led to anything but edifying scenes between the collector and the missionaries or their agents. However, some Orchids—among them *Brymerianum*—were sent to England, probably by the missionaries. No descriptions being given the plants were consequently sold for a small sum, nobody suspecting for a moment that anything remarkable was among them. Mr. Brymer was fortunate to obtain some of these, and we can understand his feelings when he flowered the plant which has immortalised his name in Orchid circles."

This species being a native of Burmah requires a moist atmosphere and a fairly high temperature to ensure successful growth.

THE NOMENCLATURE OF CYPRIPEDIUMS.

IN a recent impress of the ORCHID WORLD I suggested that all Orchids, the progeny of varieties, should receive florist names, their pedigree being disregarded except for reference. A "Southerner," in a courteous letter, replies to the effect that we should retain the family name and distinguish the offspring by adding a varietal name.

As far as I can understand he would retain and record the pedigree in the name. Does he think that this mode will extricate us from the tangle? How much easier would it be to give the pedigree name the go-by, and style the hybrid such as a rose-grower would his new variety of rose, keeping and recording for public information or for private use the parentage.

On the page opposite "Southerner's" letter appears an apt illustration. Lieut.-Col. Sir George Holford shows, and receives an award, for a new *Cypripedium*, which he calls Viking, just as a rose-grower might style a new rose "Sea Foam" or "Fairy Queen." Accompanying the description of Viking we are informed of its pedigree—a useful addition.

Viking becomes a family name. I have no doubt but we shall get in time Viking superbum—a little improvement on Viking. Someone will discover a superbum differing slightly, and will call it Viking superbum Jones' variety. Thus every time we allude to this hybrid the long name hangs about it. There exist Orchids after this style, the names of which are often hard to pronounce, and sometimes the educated have a scruple of pronouncing them at all, for example, *Cypripedium Actæus revoluta*. Why not abolish this anomaly. If a distinct seedling comes out of the Viking seed-pod call it a name unto itself, such as Siegbert, and add for information only that it belongs to the Viking section.

Regarding the deprecation of Major Hurst in alluding to the practice of stating parentages in fractions, I may be permitted to remark, as one who has had nearly twenty-five years' experience in breeding, accompanied

by some little success in competition, that it is not the analysis in fractions that is erroneous, but the undue insistence sometimes placed on the value of these fractions as a basis for breeding.

Is not Major Hurst's statement of *fact*—that characters segregate in the second generation—rather misleading? Do characters segregate at all? After perusing Professor Bateson's and Professor Punnett's beautiful little books on Mendelism and comparing them with the closely reasoned treatise on the laws of heredity by Dr. Reid, I am still inclined to be of the opinion that characters *blend*. Some theorists on genetics may state their opinion that characters segregate, others that they blend, in succeeding generations, but no one may correctly state either to be a proved fact.

JOHN CROMBLEHOLME.

ORCHID BREEDING.

DOMINANCE OF *LÆLIA COWANII*.—In reference to the remark of Major Hurst (p. 85) that *L. Cowanii* so far appears to give all yellow selfs with both coloured and albino forms. I have already flowered *L.-C. Oriens* (*Trianæ* × *Cowanii*) which had a beautiful flower with a nice crimson front lobe to the lip. The first *Oriens*, I believe, came plain, from which I gather that Major Hurst infers that *L. Cowanii* gives hybrids without the usual crimson when crossed with coloured *Cattleyas*, but I fear this is a premature conclusion.—*Eustace F. Clark, Evershot*

BLOTCHED CRISPUMS.—I am sorry to say I do not quite agree with Major Hurst regarding his method of obtaining a blotched crispum by crossing crispum with *Wilckeanum* (crispum × *luteopurpureum*). This will produce mirum, and in crossing these plants again there will always arise the risk of obtaining some yellow ones amongst the seedlings. In former days, when several blotched crispums were crossed with blotched crispums, and so many bad and white varieties were obtained, I think the crispums used as parents were not heavily blotched enough, or sufficiently well

coloured. My personal experience has been that when using crispum *Mossiæ*, one of the heaviest blotched crispums ever seen, all the seedlings are blotched. Crispum *Mossiæ* may have hybrid blood in it, but it certainly is not *luteopurpureum*, the colour being port wine.—*J. S. Moss, Bishop's Waltham.*

CYPRIPEDIUM LEEANUM.—Mr. Hunter, Orchid grower to His Grace the Duke of Marlborough, has recently flowered a large and bold type of *Cypripedium Leeantum*, which has been produced by crossing together *Leeantum giganteum* and *Leeantum Laver-tonianum*. Two plants from the resulting seed-pod have so far flowered. The first gave a very deformed bloom; the second, although slightly deformed, produced a flower in all other respects superior to either parent. In this we have an example of Major Hurst's suggestion to mate together two similar hybrids. An increase in the size of the flower has certainly been produced, but the deformity is not encouraging.

THE RE-MAKING OF A BLOTCHED CRISPUM.

MAJOR HURST'S Paper, in its second half (p. 82), will go far to convince even the most obdurate opponent of a crispum being a hybrid, and, personally, I am naturally very pleased to welcome his reasoning hereon, which certainly very unreservedly endorses what I have stated, in and out of season, for many years past. I thank him cordially, and am glad to see him on my side, for he has made it a deep and interesting study, and though he may be too absolute in the Mendelian results, we can travel a long way together on the same road.

While agreeing with the process of Nature making a blotched crispum, I do not think it possible that the resulting hybrids all behave in the regular arithmetical manner that Major Hurst lays down, because the plain crispum *must* have had *some* coloured blooded ancestors, and hence a latent germ would upset the regular order of sectional division.

Then as regards the crossing of Wilckeanum with plain crispum, I think the proportion of white would be more than one in four, because it is sometimes greater than that when a blotched crispum is used. As I said in the discussion of the Paper, the mortality among the seeds and infantile plants is a very disturbing factor in all these calculations, and I do not see how it can be obviated or reduced to an absolute proportion of various forms.

Take a parallel cross in Odontoglossum amabile, which bears the same analogy in its descent from Harryanum as mirum does from luteopurpureum, I do not think the proportion of one blotched and one plain of both yellow and white grounds has been at all proved. Personally I have bloomed a great many plants of amabile, but have never yet had a plain white or a plain yellow one (I wish I could get a well-formed one, it would be worth having), and as far as I hear from other raisers I have no knowledge of one. Here, I think, we have a strong point against the arithmetical proportions of the Mendelian theory in these complex hybrids.

There are five different possible ways in Nature's workshop of making a blotched crispum, as she could have produced them with the aid of luteopurpureum, gloriosum, and Lindleyanum, from the old Pacho districts, and with triumphans and Hunnewellianum from the newer Chiquinquirá habitats. I use these terms geographically to indicate the two great divisions of Odontoglossum crispum.

The hybridist has raised crispums from plants containing all these five species in their ancestry, and the resulting seedlings in many cases unmistakably prove their influence. By far the greatest number of blotched crispums emanated from the districts where Hunnewellianum grows mixed with crispum, while those resulting from the habitats containing luteopurpureum were quite a few compared to these later introduced forms.

It has been proved *every time* that *any pair* of blotched imported crispums will throw a large quantity of unspotted forms. Therefore,

I can hardly think that Franz Masereel, Leonard Perfect, Lindenii, Victoria Regina, Rossendale, Lucianii, Alphonso, and Crawshayanum all result from a cross between a blotched and white form as is presumed by Major Hurst.

The result of crossing two seedling blotched crispums has yet to be seen, and according to the laws Mendelian the results should be *all* blotched. I hope it will prove true, but I fear it will not be so by a long way, for if we could raise such fine things as King George V., St. Fuscien, and others of the first rank, in quantity, it would be a decidedly pleasant thing to have achieved.

Major Hurst appears to consider the blotched character of a crispum should be permanently fixed in *three* generations. I sincerely hope he is correct and that I am the reverse, but I fear even the third crossing will give a lot of reversion to plain, unspotted forms.

THE MAKING OF A SCARLET CRISPUM.

Major Hurst thinks we have been slow herein, but he knows that Nature does not do just all we think she ought to do at our bidding. In some of the latest Odontiodas we are getting near the size of a crispum, but as yet we have not eliminated the blotching on the red ground of the largest derived from crispum and Pescatorei. Doubtless there are many seedlings growing now, the result of unspotted crispums crossed with Cochlioda Nœzliana, and in due time these will tell if this is the way to produce the Scarlet crispum.

The only one that I know thus crossed is Odontioda Bradshawiæ Cookson's var., which Mr. Chapman states was raised from a fine unspotted crispum, but it is by no means a pure scarlet crispum, as there is a great deal of lilac in it, almost violet; of course, there may have been a good deal of purple sap in the crispum used.

Regarding the crimson crispum and Major Hurst's way of producing it, I may state that Odontioda rosefieldiensis (C. N. × triumphans

Lionel Crawshay) and *Odontioda Lutetia* (C. N. $\times$ *luteopurpureum*) do not give us much encouragement in getting a crimson crispum that way, and I fear that triumphans Ajax and *luteopurpureum* *Vuykstekeanum* will not help us at all, for all hybrids as yet raised from the latter in place of an ordinary dark *luteopurpureum* have proved a darker race than those from the darker luteos. I prefer a cross of a good unspotted crispum roseum with C. *Noezliana* as the means of getting a really crimson crispum, and this is no doubt already made.

These hybrids are daily becoming more complex, and, therefore, more interesting, and really one life is far too short and narrow wherein to work (especially when we begin in the latter half of it) to get a great measure of success. But if we all do our utmost thoughtfully and keep careful records, that will go a long way towards having done a great deal in the direction of the ends we desire to attain. We want a few more earnest scientific and practical men combined, as we are still short of them.

January 13th, 1913. DE B. CRAWSHAY.

ORCHID BREEDING.

CONSIDERABLE interest is always attached to the various means by which a good hybrid Orchid is obtainable, and before going further into the matter it will be desirable to secure a correct impression of what a good Orchid really is. Hybrids of one kind are not compared with those of another. That is, no one could reasonably express an opinion as to whether a certain *Cattleya* is better than a selected *Odontioda*; all Orchids are compared with others of their own kind. Thus, we might mark one variety of *Cattleya* Iris as first-class, and, at the same time, distinguish a certain *Odontioda* as second-class, although it is quite possible that the latter hybrid might be more valuable than the former. We could, however, easily determine the merit of either hybrid by comparing it with a painting of the previous best result of its kind, and this is the

recognised method in vogue at the present time.

Now the constitution of a good Orchid is purely arbitrary; in other words, it is determined solely by one's own judgment. Not so many years ago any *Odontoglossum* having a few spots was considered worthy of a varietal name; then the blotched forms came rapidly to the front; and, shortly after, all interest spread into those *Odontoglossums*, now known as *Odontiodas*, having more or less of a scarlet hue inherited from *Cochlioda Noezliana*. It is hardly necessary to remind one of the high value which was set upon the early *Odontiodas*; they were considered first-class Orchids of the highest standard. To-day, many of these actual plants have fallen in dignity to the ranks of ordinary Orchids. They have lost none of their original shape and colour; in fact, they are now stronger and produce finer flowers than when they first saw the light of day, yet very few of these once famous plants would receive the lowest grade of certificate if again exhibited at the Royal Horticultural Society. To those who ask the reason there is but one answer—the Orchids remain the same, but fashion alters. The logical conclusion is that any definite method of breeding, whether scientific or otherwise, cannot always prove successful.

It is plainly evident to one and all that the essential points of an *Odontioda* are size and colour. Every primary hybrid between an *Odontoglossum* and *Cochlioda Noezliana* produces flowers with the scarlet colour strongly inherited, although the amount varies more or less in the various parts of the flower, and in some flowers it is broken up into blotches by the influence of the *Odontoglossum* parent. The chief attraction of these hybrids is the scarlet colour; while the ambition of the hybridist is to enlarge the flower without losing any of this valuable pigment.

In *Odontiodas* the colour parent is the smaller of the two, and whenever the characters of the hybrids run in the direction of this species, as they nearly always do, small flowers, but with plenty of colour, are the result.

Two future methods of hybridising usually present themselves to the raiser. One is to mate the primary hybrid with the *Cochlioda*, and the other to mate it with the *Odontoglossum* parent. It is at once obvious that the former would lead us away from our object of producing a large scarlet flower, for the increased percentage of the *Cochlioda* in the resulting hybrid would give a result more closely approaching the small and richly coloured parent. The second method will bring us nearer to our desired object, for in this case the *Odontoglossum* will give the requisite percentage of size, and we may reasonably expect a considerable improvement in this important factor.

Major Hurst has explained (p. 84) that "the common practice of mating the primary hybrid back to one of its parents cannot be expected to succeed, because such a mating implies the presence of a single dose only of one of the two characters concerned. By such a mating one of the characters is secured by a double dose at the expense of the other which can only have a single dose." This may be scientifically true in every respect, but up to the present time sufficient success has generally been achieved by this single dose of the *Cochlioda* parent, the reason being that its specific strength is so remarkable that more is not required.

Here we may again refer to our previous remark concerning the fashion of Orchids, for that which proves equal to present-day requirements will not be efficient for those in the near future. Progress must take place, and we are constrained to use every available method towards its encouragement.

It is more than probable that we shall often require to use a certain highly coloured species to its fullest extent, not only in its specific form, but also in the various proportions in which it is frequently encountered. No doubt this can best be accomplished in the manner suggested by Major Hurst, who recommends the process of mating two of the primary hybrids together. This is an interesting subject, and, strange to say, there appears to be but little evidence that this simple method has been attempted. It would

not be a difficult matter for anyone to cross together two varieties of *Odontoglossum amabile*, or two plants of *Odontioda Bradshawiæ*, or even two varieties of *Cattleya Hardyana*. This would certainly prove a welcome change from the invariable method of mating the primary hybrid back to one of its parents.

It is not to be supposed from the above that good results cannot be obtained by mating a hybrid with one of its parents. As a matter of fact, considerable success has been achieved, although largely due to careful forethought, and not to haphazard work. *Cattleya Iris* (*aurea* × *bicolor*) is a very beautiful hybrid and created considerable excitement when it first appeared. Not content with such elegance, Orchid fanciers longed for further success, and the hybridist satisfied their wishes by producing *Cattleya Venus* (*aurea* × *Iris*). Success, in this case, was obtained by mating the primary hybrid with one of its parents. If *C. Iris* were mated with its parent *bicolor* we should obtain a large number of hybrids (*C. Farquharsoniana*) varying in shape and colour between *bicolor* and *Iris*; but if *C. Iris* were mated with *C. aurea* we should get numerous flowers (*C. Venus*) varying between these two latter parents. Now both these crosses might give us hybrids of equal rarity, and, from Nature's probable point of view, equal beauty, but from our fashionable aspect of an Orchid no one will deny the premier position occupied by *C. Venus*.

We have now considered the making of two important hybrids. The first, an *Odontioda*, in which it was found necessary to perpetuate the scarlet colour of one parent and the large size of the other to their fullest extent by crossing together two primary hybrids, generally of similar parentage, although this is not absolutely necessary, for by this method of mating a double dose of each of the two characters, size and colour, that the hybridist wishes may best be obtained.

The second example was one in which one parent, *Cattleya aurea*, should be carried forward in larger proportion than the other, *C. bicolor*. In this case only a small dose of the

bicolor was required, and the best results were obtained by mating the primary hybrid, *C. Iris*, with its parent, *C. aurea*, the result being *C. Venus*.

C. aurea is the largest of the yellow section of *Cattleyas*, but the somewhat weak constitution of the species and the rather drooping nature of the petals does not allow us to call the plant perfect from a hybridist's point of view. It is to remedy these defects that the mating of the species with *C. bicolor* has been effected, and with what beneficial results everyone is well acquainted.

DENDROBIUMS.

DENDROBIUMS form one of the chief supplies of bloom during the month of February. When the buds commence to open care must always be exercised with regard to the atmospheric moisture of the house, an excess tends to produce spotting of the flowers, especially when the night temperature is low. The heat of the house may be economised at night-time by covering the glass with mats or blinds, and by this means less heat in the pipes will be required. Plants invariably grow better when the necessary temperature can be maintained without much artificial heat.

Where many *Dendrobiums* are grown it is a common practice to bring a few plants into extra heat in order that they may open their flowers before the remainder of the stock. These early flowers are not always equal in quality to those of later date, but they prove useful by extending the flowering season. Plants which have been forced in this way are very apt to recommence growth at an early date, even before the necessary cultural atmosphere has been prepared, consequently they will require frequent watching or the young growths will very likely damp off. The best plan is to remove these early flowered plants into a cool and dry atmosphere where they may be induced to continue resting for a few more weeks.

Most *Dendrobes* look their best when grown into specimens bearing a hundred or

more flowers, and a house of such plants is a magnificent sight. The best and quickest method of obtaining large plants is to grow the small ones on as rapidly as possible by not allowing them to flower, or by removing the flowers directly they open. As soon as a plant has six or more good bulbs the rhizome should be severed at a place that will allow two or three bulbs to support each leading growth. In this way additional new growths will be produced from eyes which would otherwise remain dormant. The plant, or roots, should not be disturbed in any other way, unless repotting is necessary, an operation best deferred until root action recommences at a later period.

It is surprising to see how well *Dendrobiums* grow in comparatively small pots, an excess of compost appearing very injurious to them, and frequently resulting in rapid decline of their health. Small propagated plants should be placed in pots just large enough for an additional bulb to be made. The following season more room may be given, although it will hardly ever be found necessary to allow more than two inches of space between the new growth and the rim of the pot. All the bulbs should be neatly tied to a central stick, and whenever insect pests make their appearance never fail to destroy them at the earliest opportunity. A suitable compost will be found in a mixture of one-half fibre, the other half sphagnum moss and a few chopped leaves.

At the commencement of the new growth a minimum temperature of 55 degrees will suffice, but later on, when the growing season is more advanced and frequent syringing of the plants is effected, 65 or more degrees will be necessary. Bright sunshine will cause a rapid and temporary rise of the temperature, but apart from this the cultivator should aim at a moderate increase of the heat week by week as the plants increase in the vigour and size of their new bulbs, the highest temperature being when the bulb has almost completed its growth. From then onwards gradual lowering should occur until the minimum autumn temperature of 55 degrees is reached. When the plants have entirely

ripened their bulbs a dry and airy position should be selected for their winter quarters.

Dendrobiums delight in a hot, moisture-laden atmosphere during their growing season, and require but little ventilation until their bulbs reach maturity. Recent experiments, however, have shown that these conditions are not absolutely necessary, many excellent specimens having been produced by growing the plants in a moderate temperature, similar to that of the *Cattleya* house, and where daily ventilation has been given. Plants grown under these latter conditions are probably less liable to be attacked by disease, but it is doubtful whether their flowering result is equal to the older method of culture in which abundance of heat and moisture is the chief factor. One thing remains certain, no bulb will give good flowering results unless it is sufficiently ripened during the autumn or close of its growing season.

CULTURE OF DECIDUOUS CALANTHES.

AFTER flowering, the bulbs of deciduous *Calanthes* should be allowed to rest in a warm temperature, such as a *Cattleya* house, and near to the glass in order that they may receive all the light possible, and also be kept quite dry. As soon as the bulbs commence to make new growths at their base they should be taken out of the pots and the old roots cut away, leaving only just enough to steady them when placed in the new compost, the most suitable being good fibrous loam, with a little dry cow manure, fine charcoal and crocks, and a sprinkling of coarse sand.

The bulbs should be firmly potted in rather small pots, using a liberal amount of drainage, over which a little sphagnum moss should be placed. The plants should then be placed near the light in a *Cattleya* house, and should not receive any water at the roots until the latter are working freely in the new compost, and then only a small quantity for some time. But when the pots are full of roots and the foliage is well advanced plenty of water may

be given. As soon as the flower spikes have made good progress, and the foliage begins to turn yellow, the water must be gradually withheld until the leaves have quite faded. From thence onwards the plants will require no more water, not even during the time when they are in bloom.

Calanthes should never be syringed, and if grown with other plants that require this operation there must be some arrangement to prevent the water reaching them. When the plants are in full growth during the summer time weak applications of cow manure, twice a week, will prove advantageous, but this must be discontinued when the bulbs are made up and the flower spikes appear.

J. CYPHER.

DECIDUOUS CALANTHES.—Messrs. Cypher and Sons have long been famous for their skill in the production and arrangement of decorative plants and flowers. The photographic illustration in this issue depicts a wonderful show of *Calanthes* flowering in the depth of winter at their well-known establishment at Cheltenham. The species included in this group are *vestita*, with its varieties *gigantea*, *luteo-oculata*, and *rubro-oculata*; and *Regnieri*. The hybrids comprise *Veitchii*, with its varieties *alba* and *Sandhurstiana*; *Sedenii*, and its varieties *bella* and *Harrisii*; and *Bryan*, the latter also known as *Wm. Murray*.

No matter at what season of the year flowers are required the skill of the florist seems equal to their production. There are many owners of greenhouses who would greatly appreciate a winter supply of flowers, and nothing could give them greater satisfaction than a collection of *Calanthes*. True Orchids they are in every sense of the word, yet able to be grown under conditions more closely approaching greenhouse plants than any other species. No very special treatment is necessary, consequently everyone may obtain highly satisfactory results. At Christmas time they make a pleasing effect when arranged with palms and ferns, and their tall and graceful spikes remain in perfection for several weeks.



Deciduous Calanthes at Messrs. J. Cypher & Sons, Cheltenham, January, 1913.

ORCHIDS FOR AMATEURS.

THE amateur who has but little spare time, and is unable to afford the practical assistance of an experienced gardener, naturally desires to select plants which will give the best results under the somewhat limited means at his disposal. On the one hand, he requires plants likely to produce a fair amount of bloom; on the other, he does not wish to possess those that make a gorgeous show for a few days and then fade away. The smallness of his greenhouse compels him to select plants that will look neat and green throughout the year, for he is without the resting houses often seen in large establishments. Again, he never desires to attempt competition at the important flower shows, his only and earnest ambition being to produce a few flowers during every week of the year.

Now such ambitions are in the minds of many hopeful amateurs who often attempt the culture of plants which in the hands of experienced growers frequently fail to give good results. How then can a beginner reap success? More than one amateur has given up the culture of Orchids by reason of beginning in too ambitious a manner, his early hopes are extinguished, patience gives way, and the collection is heard of no more. The amateur is not alone to blame; in fact, he deserves our sympathy and kindly assistance more at the commencement of his hobby than at any future time. Many of our renowned amateurs of the present day owe all their prosperity to the praiseworthy aid of a helpful friend in their childhood days of Orchid growing. A friend in need is a friend indeed, and without such timely aid disaster takes the place of success.

Orchids for amateurs comprise those which may be left for a day or so without requiring much attention. In this matter one does not wish to suggest to amateurs that Orchids may be stored away like so many dry bulbs, but rather that some preparations should be made whenever absence is likely to be of more than a day's duration. One half-day a week spent

in potting or cleaning the house is all the time necessary to keep a small collection in general health during the greater part of the year, although one should not forget that a few minutes must be spent every day in watering the plants, and in keeping the fire going during the cold weather. But these matters are part of the every-day work of the dwelling-house, and may be well attended to by the same person.

If one can spare more time there is no reason why these and other matters should not have still greater attention, for in Orchid growing, as in almost everything else, nothing can really be too well done. Thus, instead of permanent shading, some material, such as canvas or lath blinds, might be used with advantage to those plants requiring a greater quantity of sunshine or bright light. The essence of the whole matter is for the amateur to decide what conditions of culture he can reasonably maintain, and then to purchase and grow only plants likely to suit these conditions. Success instead of failure will be sure to follow.

During the ensuing year we shall comment on some of the most suitable Orchids for the commencing amateur to cultivate. These will include only those of reasonable price, easy to cultivate in the small greenhouse that an amateur usually possesses, and, at the same time, those which will amply repay one for his trouble by yielding pretty and long-lasting flowers.

A few strong plants of *Lycaste Skinneri* can be well recommended; costing but little, they produce several large blooms during the winter months, a period when flowers are much appreciated. These flowers are more or less deeply tinted with rose, the lip frequently having a crimson blotch, and the larger and better coloured this is so much finer may the variety be considered. This plant is a strong rooting kind and delights in a firm compost of about one half peat and the remainder good loam, with some sphagnum moss. During the summer and spring months

when new growth is being made, the compost should always be in a damp condition. The long and broad leaves may be syringed on all fine days, taking care that this is done early in the day in order that the superfluous moisture may be evaporated before the evening. Shading must be used to prevent the sun from scorching the leaves, an event likely to take place during the spring months, for it is then that the new growths are liable to be spoilt. The older leaves, those of last season's growth, are less likely to be affected.

culture can be procured in every collection, however small it may be. Those who care to spend a few extra shillings may purchase really beautiful varieties, and without much additional expense the pure white *L. Skinneri* alba may be purchased. With the latter acquirement an amateur may have every reason to be proud of his possessions, for he may rest assured that his horticultural neighbour will not fail to appreciate so chaste and beautiful a flower.

Maxillaria grandiflora is in many ways



Maxillaria grandiflora.

The bulbs complete their growth with the finish of summer, and from that time onwards until the flowers are produced, only sufficient water to prevent the bulbs from shrivelling will be needed. Probably two or three plants of this Guatemalan species will be as many as an amateur will require, although hardly two will be found exactly alike in their flowers. On this account some of the large collections contain as many as a hundred plants, all showing some slight variation, and a special house is not unfrequently set apart for their cultivation. But amateurs need not be discouraged in reading this for a state of perfect

similar to *Lycaste Skinneri*. The plants delight in a moist atmosphere in the cool house, that is, a place where the temperature averages 50 degrees, although a few degrees less will do no harm so long as the air is kept proportionally drier. The autumn sees this Peruvian species at its best, the erect flower stalks carrying elegant, deliciously fragrant white blooms, the lip marked with purple. No amateur should experience any difficulty in cultivating this useful species, either in growing a small plant into a specimen or in obtaining floriferous results. For a compost nothing is better than fibrous peat with a

small quantity of sphagnum moss. Shading and syringing frequently require attention at the same time, and while the plants delight in an abundance of atmospheric moisture during their growing season, care must always be taken that this moisture is greatly reduced during the night time, and, in fact, during the dull days frequently experienced during spring and autumn

NEW HYBRIDS.

CATTLEYA PERCIMAX.—In these days of complex parentages the recording of a new primary hybrid is becoming of rare occurrence. *C. Percimax*, the result of crossing *Percivaliana* with *maxima*, has been raised by Mr. Eustace F. Clark, of Evershot, Dorset. The flower is very intermediate in form and colour between the two parents, the most attractive part of this winter-flowering hybrid being the labellum, in which the distinct veining of *maxima* and the rich coloration of *Percivaliana* blend in a bright and happy manner. The centre of the lip is deep orange, the outer part rose-purple with a distinct bluish tinge.

LÆLIO-CATTLEYA HARRIANCEPTS.—As may almost be guessed by its name the parentage of this new hybrid is *C. Harrisoniana* × *L. anceps*. In many ways intermediate between both parents in form and colour, it has, however, a handsome violet-purple blotch of colour on the front lobe of the labellum. Raised by Messrs. J. and A. McBean, Cooksbridge.

CYPRIPEDIUM IONA.—A new primary hybrid between *C. Fairrieanum* and *C. bellatulum* has been raised by Mr. Hunter in the Blenheim Palace collection. The creamy white flowers are elegantly veined and spotted with rose-purple. The drooping nature of the petals of both parents assists in producing a unique and very distinct hybrid. Obtained Award of Merit, Royal Horticultural Society, January 7th, 1913.

DIA-LÆLIA LANGLEYENSIS.—Messrs. Veitch and Sons have produced this interesting hybrid between *Diacrium bicornutum* and

Lælia purpurata. The petals are broad, but drawn to a point, and light rose colour. The rose-purple lip is veined with dark purple, and the shoulders and side lobes are widely open. This hybrid makes a companion to *Dia-Lælia Veitchii* (*D. bicornutum* × *L. cinnabarina*), the only previously recorded hybrid between these two genera.

ODONTOGLOSSUM MACULATOREI.—In this hybrid the Colombian and Mexican *Odontoglossums* have been again united by crossing *maculatum* with *Pescatorei*. The seedling recently flowered by Mr. J. S. Moss, of Bishop's Waltham, could not be regarded as very meritorious, yet of considerable interest, for it showed what a very remarkable power the *Pescatorei* has over the *maculatum*, the latter species being hardly recognisable in the flower. It will be of interest to watch the flowering of future hybrids with similar parentage.

BRASSOCATTLELIA NOLA.—The interesting nature of this new hybrid between *Brassavola nodosa* and *Lælio-Cattleya callistoglossa* allows the plant to be recorded, although the flowers cannot be considered equal in merit to many of the other *Brassavola* hybrids. The strong specific nature of the *Brassavola* parent has had a remarkable influence over the two other species contained in the pollen parent. The flower, in general, is a greatly improved *nodosa*, the sepals and petals almost white, the comparatively large labellum spotted with violet-purple. The richly blotched lips of the *callistoglossa* parents (*gigas* and *purpurata*) have quite disappeared. Raised by Messrs. J. and A. McBean, Cooksbridge, Sussex.

ADIODA ST. FUSCIEN.—This curious bigeneric hybrid between *Ada aurantiaca* and *Cochlidia Næzliana* was originally raised by Mons. Henri Graire, Amiens, France, who exhibited it at the Royal Horticultural Society, August 29th, 1911. At the meeting of the Society held January 7th, 1913, Messrs. Charlesworth showed a hybrid of similar parentage, but with a darker red flower than that of the original plant. On this latter date the Scientific Committee granted a Certificate of Appreciation to both Mons. Graire and



Winter Flowering Hybrids in the establishment of Messrs. Charlesworth & Co., Haywards Heath.

Messrs. Charlesworth for their work in raising this interesting hybrid.

CATTLEYA MADONNA.—A very beautiful winter-flowering primary hybrid between *C. chocoensis* alba and *C. Trianae* delicata has been raised by Mr. F. C. Puddle in the Scampston Hall collection, Rillington, York. The flower suggests an immense variety of *chocoensis*, the very broad, almost round petals of this species appearing in the hybrid with their accustomed forward position, as though the bloom was but half open. A slight tinge of pink is visible on the sepals, and the basal portion of the column is streaked with purple, while the inner part of the throat and side lobes of the lip is orange-yellow, otherwise the flower is pure white, and of fleshy substance.

LÆLIO-CATTLEYA AURENSIS.—Messrs. McBean have recently flowered several plants of this hybrid between *C. aurea* and *L.-C. Behrensiana* (*L.-C. Schilleriana* × *Loddigesii*). The complex parentage produces great variety in the flowers. The best and most promising have medium-sized blooms of soft rosy-purple colour, the influence of the underlying *aurea* pigment being very helpful.

LÆLIO-CATTLEYA CICELY.—This new and pretty hybrid between *C. Forbesii* and *L. cinnabrosa* (*cinnabarina* × *tenebrosa*) has recently flowered in the collection of Eustace F. Clark, Esq., Evershot, Dorset. The cross was made June 4th, 1902, and the seed sown in the spring of the following year. The first plant to flower has thus taken more than nine years to reach maturity. The somewhat narrow sepals and petals are straw-yellow, with a slight reddish tinge. The lip is handsomely veined along its entire length with crimson, and there is a reticulation of the same colour on the broad apex. The total width of each flower is about four inches. Mr. Clark sent a flower spike of this hybrid to the Orchid Committee of the Royal Horticultural Society, December 3rd, 1912, with a request that it should bear the name *L.-C. Evershotensis*, under which name we briefly recorded it on page 77 of our January issue. This name must now give place to *L.-C. Cicely*, the one under which it has been

recorded a few days earlier in the *Gardeners' Chronicle*, December 28th, 1912.

ORCHIDS AT COOKSBRIDGE, SUSSEX.

BEAUTIFUL Orchids and sunny Sussex appeal to most lovers of horticulture; the one goes hand in hand with the other. Of the many rich collections in this favoured county one of the oldest is at Cooksbridge, a small village close to Lewes, and within eight miles of the sea. The houses containing the extensive stock of Orchids belonging to Messrs. J. and A. McBean are situated in open country, unsheltered by adjoining buildings, and unshaded by surrounding trees, yet producing some of the finest examples of cultivated plants.

During the last few years *Cymbidium* hybrids have become very popular, largely owing to their graceful foliage and the elegance and long-lasting nature of their flowers. Messrs. McBean are the fortunate possessors of a house, some 70 feet in length, entirely filled with these plants. The foliage is of considerable decorative value, varying, as it does, from broad and leathery leaves to those of narrow and grass-like nature. Such plants cannot fail to prove attractive in more ways than one.

It is remarkable how well these hybrids have grown during their comparatively short life, five years covering the whole of their existence. Many of the first-made bulbs are equal in size to those seen on imported plants, and the purple tint, so sure a sign of ripeness, is visible on nearly all the bulbs and leaves. Experiments have proved that the most suitable compost is a mixture of about two-thirds good loam, one-third *osmunda* fibre, and a little sphagnum moss. The *osmunda* prevents the loam from becoming a solid mass, and also allows the surplus water to pass quickly away. *Cymbidiums* are often to be seen flourishing well in nothing else than loam, but when thus grown, considerable care in watering is required to prevent sourness of

the soil. Young and valuable seedlings are much safer, and, in fact, grow quicker in a sweet, open mixture.

The success so far obtained with the flowering of these hybrids has been very encouraging, and judging by some of the parents which have been used, the results of plants as yet unflowered are eagerly awaited. Of those which have already flowered mention must be made of *Cymbidium Gottianum* (eburneum $\times$ insigne), *C. Alexanderi* (eburneo-Lowianum $\times$ insigne), *C. Schlegelii* (Wiganianum $\times$ insigne), *C. Pauwelsii* (Lowianum $\times$ insigne), *C. Wiganianum* (eburneum $\times$ Tracynum), and there is a good plant of the elegant *C. rosefieldiense*. A pretty hybrid may be seen in *C. eburneum* $\times$ *Lowianum* concolor, and also in *C. eburneum* $\times$ *Lowianum auriferum*.

Odontoglossum crispum has always been a speciality, and Cooksbridge has long been noted for the excellent forms of this ever-popular species. With the advent of *Odontoglossum* hybrids interest in this species certainly waned for a short period, but amateurs are again fully appreciating the merits of crispums. It is no unusual event to see a branching spike of twenty, or more, flowers fully open at Christmas time, while others, by the successive opening of fresh buds, will last in flower for the long period of six and seven weeks. It is impossible to state the exact number of crispums in this establishment; their total is expressed in tens of thousands, while their numerous flower-spikes maintain a constant and abundant supply of bloom.

More than one spacious house is entirely filled with *Odontoglossum* hybrids, plants in all sizes, from minute seedlings to flowering specimens, manifesting the best of good health. *Odontoglossum pulchellum* $\times$ *Od. Edwardii* is worthy of special notice in being one of the very few cases in which the latter species has been successful as a pollen parent. *Odontiodas* are equally well represented, and an interesting plant is to be seen in *Oncidioda Cooksoniæ* (*C. Noëziana* $\times$ *On. macranthum*).

Cattleya species are really remarkable in the vigour of their growth. Words fail to

give a fair idea of the immense bulbs formed by many of the plants. The following exact measurements are well worthy of being placed on record. *Cattleya Schröderæ*, a grand specimen, has the largest bulb, 6 inches in circumference, with a flower-sheath 6 inches high and 2 inches wide, and the leaves $3\frac{1}{2}$ inches across. Many *Schröderæ* plants are to be seen with bulbs of $5\frac{1}{2}$ inches circumference. A very distinct looking plant of *C. Mendelii* has a leading bulb $4\frac{3}{4}$ inches in circumference, the flower-sheath 2 inches wide, and the leaves



The large Cattleya House.

$3\frac{1}{2}$ inches across. Many fine plants of *C. Warszewiczii* have leaves similarly proportioned. *C. Mossiæ* is equally well cultivated, one large plant having leaves 14 inches in length, the flower-sheath $6\frac{1}{2}$ inches high, and the leading bulb $4\frac{1}{2}$ inches in circumference.

With such excellent results as the foregoing, it is not surprising to see the hybrids from these and other species also growing with considerable vigour. Several spacious houses are devoted to the culture of a vast assemblage of various crosses. Many very fine hybrids have already been produced, and it will not

be long before the great majority of the seedlings reach the flowering stage

Lælio-Cattleya Helius (G. S. Ball × *Mossiaë*) is one of Messrs. McBean's recent successes. The flower is almost as large as *Mossiaë*, and is of a beautiful yellow tint. The *L. cinnabarina* appears to have perpetuated only its yellow pigment; the red being scarcely visible. Needless to remark, the large majority of seedlings from this pod have reddish-purple flowers, as so often happens when *cinnabarina* takes part in the parentage. We can here see the wisdom of raising as many seedlings as possible from the same pod, for it is not until they bloom

that one is able to discriminate between the good and bad varieties.

Miltonias are another important feature of this establishment. They comprise most of the noted varieties, including *vexillaria* G. D. Owen, and many excellent hybrids. *Sophro-Cattleya Doris* has been raised by using the *aurea* as the seed bearing plant; by this method a better growing hybrid has been produced. *Cattleya Mendelii* "Pearl McBean" is one of the richest coloured varieties yet seen. *C. O'Brieniana alba* and *C. Dowiana Rosita* are two very large examples of these rarities, and *C. chocoensis alba* is an elegant specimen with four flower-spikes.

ROYAL HORTICULTURAL SOCIETY.

January 7th, 1913.

MEMBERS of the Orchid Committee present: J. Gurney Fowler, Esq. (in the chair), and Mr. Jas. O'Brien (hon. sec.), Sir Harry J. Veitch, Messrs. W. H. White, W. Bolton, Gurney Wilson, J. Wilson Potter, R. A. Rolfe, F. M. Ogilvie, G. F. Moore, F. J. Hanbury, W. Cobb, J. Charlesworth, J. Cypher, W. H. Hatcher, J. E. Shill, H. G. Alexander, A. Dye, R. Brooman-White, C. J. Lucas, C. Cookson, de B. Crawshay, W. P. Bound, A. McBean, T. Armstrong, and C. H. Curtis.

G. F. Moore, Esq., Chardwar, Bourton-on-the-Water, received a Gold Medal for a remarkably fine display of *Cypripediums*, comprising more than 250 specimen plants, and staged in excellent manner.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill), received a Silver-gilt Flora Medal for an attractive exhibit of *Lælia anceps* and its varieties. The plants were shown in splendid health, the pure white *L. anceps alba* having as many as 13 well-developed flower spikes

Messrs. Charlesworth and Co., Haywards Heath, were awarded a Silver-gilt Flora Medal for a grand group of Orchids containing selections of their various winter-flowering hybrids and rare species.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Geo. Day), received a Silver Flora Medal

for an effective group of *Odontoglossums*, *Lælio-Cattleyas*, *Miltonias*, and *Odontiodas*.

Messrs. Jas. Veitch and Sons, Chelsea, were awarded a Silver Banksian Medal for an extensive display of *Cypripediums*, including *Countess of Carnarvon*, *Idina*, and *Actæus langleyense*.

Messrs. Sander and Sons, St. Albans, received a Silver Banksian Medal for a good group of various winter-flowering hybrids, the *Cypripediums* being especially well shown.

E. H. Davidson, Esq., Orchid Dene, Twyford, secured a Silver Banksian Medal for a selection of rare and elegant Orchids. The *Odontoglossums* were a noteworthy feature.

Messrs. Stuart Low and Co., Enfield, were awarded a Silver Banksian Medal for a group of attractive plants, including *Dendrobiums*, *Angræcums*, *Ansellias*, and *Vanda cœrulea*, a variety of the latter, named *albo-violacea*, having white sepals and petals and a violet lip.

H. T. Pitt, Esq., Rosslyn, Stamford Hill, secured a Silver Banksian Medal for a comprehensive exhibit of interesting Orchids, including several of botanical value.

Messrs. J. Cypher and Sons, Cheltenham, were awarded a Silver Banksian Medal for an

attractive group of *Cypripediums*, *Masdevallias*, and well-grown *Calanthes*.

Messrs. J. and A. McBean, Cooksbridge, were awarded a Silver Banksian Medal for a group of their well-known *Odontoglossum crispum*, *Lælia anceps*, and *Cymbidium* hybrids.

J. S. Moss, Esq., Bishop's Waltham, exhibited *Odontoglossum Smithii*; *O. crispum* *Kenchii*, an elegant blotched variety; and some interesting seedlings.

Sir Charles Haddon, Berkhamsted, secured a Bronze Medal for a group of *Cypripedium insigne sylhetense*.

Lady Wernher, Luton Hoo, showed several plants of the rose-purple *Calanthe Vulcan*.

F. J. Hanbury, Esq., Brockhurst, East Grinstead, sent *Cypripedium* *Lady Carlile* (*Troilus* × *Hera*), a very large and handsome flower.

de Barri Crawshay, Esq., Rosefield, Seven-oaks, showed *Odontoglossum Vulcan* *Crawshayanum*, a very fine form, and *Od. rosefieldiense* with a spike of 12 flowers.

W. R. Lee, Esq., Plumpton Hall, Heywood, sent *Cypripedium* *Lady Dillon* (*Mrs. W. Mostyn* × *nitens*), an elegant hybrid.

The Hon. Robert James, Richmond, Yorks., exhibited *Cypripedium* *Lady Evelyn James* (*Leeanum* × *aureum*), of good shape.

Sir Jeremiah Colman, Bart., Gatton Park, exhibited *Odontioda Bradshawia* *violacea*, a well-grown plant with a spike of 50 scarlet-red flowers tinged with violet on the tips of the segments.

Francis Wellesley, Esq., Westfield, Woking, sent *Cypripedium* *Memoria Mostynii*, a charming yellow and white flower.

Lieut.-Col. Sir George Holford, K.C.V.O. (gr. Mr. H. G. Alexander), exhibited *Cattleya Miranda*, with a seven-flowered spike; *Cypripedium* *Ulysses* (*Vandyke* × *G. F. Moore*), and *Cyp. Corsair* (*Niobe* × *nitens*), somewhat similar to *Niobe*.

AWARDS.

FIRST-CLASS CERTIFICATE.

Odontoglossum Pescatorei *Sanderæ*, from Baron Bruno Schröder (gr. Mr. J. E. Shill).—

A very unusual form with yellowish-white flowers, the inner parts of the segments spotted with light brown.

AWARDS OF MERIT.

Odontonia Firminii (*Miltonia vexillaria* × *O. crispum*), from M. Firmin Lambeau, Brussels.—A very interesting hybrid, flowers white with a brownish-rose mask to the lip.

Habenaria Roebelenii, from E. H. Davidson, Esq., Twyford.—A vermilion-scarlet flowered species from Annam, and somewhat similar to *H. militaris*.

Lælia anceps *Roeblingiana*, from C. G. Roebling, Esq., Trenton, New Jersey, U.S.A.—A very uncommon variety, flowers dark rose-purple with the petals partaking of the labellum characters. Probably a *peloriata* form.

Cypripedium Amazon (*Leeanum Corona* × *nitens*), from F. M. Ogilvie, Esq.—A good-shaped flower with dorsal sepal green at the base, white above, and with vertical lines of spotting.

Cypripedium Iona (*bellatulum* × *Fairrieanum*), from His Grace the Duke of Marlborough (gr. Mr. Hunter).—Flowers creamy-white elegantly veined with rose-purple.

Cypripedium Alcinida (*Alcibiades* × *insigne*), from Messrs. Charlesworth and Co.—A good, bold flower, the dorsal sepal well-developed.

Odontoglossum George Day (*Rossii rubescens* × *crispum*), from H. S. Goodson, Esq. (gr. Mr. G. Day).—A very pretty hybrid with rose coloured flowers evenly spotted with purple.

Cynoches species (*Cooperi*), from Messrs. Sander and Sons.—A handsome Peruvian species, allied to *C. pentadactylon*. Flowers reddish-brown, unspotted, but with darker veining.

January 21st, 1913.

MEMBERS of the Orchid Committee present: Sir Harry J. Veitch (in the chair), and Messrs. J. O'Brien (hon. sec.), J. Gurney Fowler, Gurney Wilson, W. Wilson Potter, R. G. Thwaites, Stuart Low, F. J. Hanbury, R. A. Rolfe, C. H. Curtis, J. E. Shill, A. McBean, J. Charlesworth, J. Cypher, H. G. Alexander, W. P. Bound, A. Dye, W. H. White, W.

Bolton, de B. Crawshay, J. S. Moss, T. Armstrong, and C. J. Lucas.

Messrs. Sander and Sons, St. Albans, received a Silver Flora Medal for an extensive group of very interesting species, including several of great rarity. *Dendrobium superbiens* and *D. Wardianum* were well shown, and *Cypripedium insigne* Louis Sander, a home-raised plant of great merit, and several excellent varieties of *Lælia anceps* showed to great advantage.

Messrs. Charlesworth and Co., Haywards Heath, were awarded a Silver Flora Medal for an excellent group containing good examples of their well-known hybrids. The interesting *Catasetum discolor*, *Trichopilia Gouldii*, *Lycaste lanipes*, *Lycaste Skinneri alba*, and white varieties of *Lælia anceps* were also shown.

Messrs. Stuart Low and Co., Bush Hill Park, Enfield, secured a Silver Flora Medal for an elegant exhibit of *Dendrobium Wardianum*, many of the plants being covered with flowers. Several excellent *Cypripediums*, *Odontoglossum* and *Cattleya* hybrids, and various botanical specimens were also included.

Messrs. J. Cypher and Sons, Cheltenham, were awarded a Silver Flora Medal for a well arranged group of *Calanthes*, grown in excellent style; *Cypripedium* hybrids, *Lycaste Balliæ*, and the interesting *Cœlogyne* hybrid which received an award.

Messrs. Hassall and Co., Southgate, were awarded a Silver Banksian Medal for a very neat group of *Odontoglossum* hybrids, *Od. Godmanii* (*Edwardii* × *Rolfeæ*) having various coloured flowers on the same spike. *Cypripedium Minos Youngii* and *Cyp. aureum lækense* were noticeable plants.

Mr. W. A. Manda, South Orange, New Jersey, U.S.A., received a Silver Banksian Medal for a large group of various species. *Lælia anceps rosea*, a distinct form; *Cattleya Trianæ* with pinkish flowers; *C. Trianæ Mauve Queen*, a large flower of delicate rose colour; and the rare *Cypripedium insigne Lageræ* were among the most interesting plants.

Lady Wernher, Luton Hoo, Luton, Beds, was awarded a Silver Flora Medal for a very attractive group of *Calanthe Regnieri*. The

plants were exceedingly well grown and carried tall many-flowered spikes.

Sir Jeremiah Colman, Bart., Gatton Park, Surrey, exhibited a most interesting collection of rare species, including a well grown plant of *Cirrhopetalum robustum*, *Oncidium dichromum*, the elegant *Zygopetalum rostratum*, *Masdevallia elephanticeps*, and a specimen *Restrepia striata*. In the centre of the group was a beautiful variety of *Cymbidium* Lady Colman with 18 large flowers.

Charles J. Phillips, Esq., The Glebe, Sevenoaks, showed *Odontioda Joan* (*Charlesworthii* × *ardentissimum*), with ruby-crimson flowers.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill), showed *Lælia anceps Hilliana* "The Dell var.," a very fine plant with three spikes and 11 flowers.

Lieut.-Col. Sir George Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), staged *Cypripedium Jura* (*insigne Harefield Hall* × *Mrs Mostyn*), a bold flower with the white dorsal darkly spotted, the broad petals and lip yellowish-brown, marked with mahogany.

E. H. Davidson, Esq., Borlases, Twyford, Berks, showed *Sophro-Cattleya Saxa* "Orchid Dene var.," a very good form, *Cattleya Harrisoniana alba*, and a very pretty variety of *Odontioda Bradshawiæ*.

Mr. S. Flory, Tracy's Nursery, Twickenham, staged *Mormodes Lawrencianum*, *Odontoglossum Phœbe*, *O. Rossianæ*, and *Cypripedium* hybrids.

J. Brisdon Seale, Esq., Fairfield, Upper Richmond Road, Putney, S.W., exhibited *Odontoglossum crispum* Rossendale with a many-flowered branching spike; and *Od. crispum Venus* × *crispum Lindenii*.

C. J. Lucas, Esq., Warnham Court, Hordsham, showed the elegant *Cypripedium George Branch*, and a number of interesting flowers of the same parentage, but with considerable variety.

Francis Wellesley, Esq., Westfield, Woking, exhibited *Cypripedium Morningtoniæ* (*Mrs. F. Sander* × *nitens*), *Cyp. Cupid magnificum* (*insigne Harefield Hall* × *Venus*), and *Brassocattleya Wellesleyæ* (*B. glauca* × *B.-C. Digbyano-Mossiiæ Wagneri*), a very elegant and pure white flower.

AWARDS.

FIRST-CLASS CERTIFICATE.

Cattleya Enid "Firmin Lambeau" (*Mossiaë Reineckiana* × *gigas* Frau Melanie Beyrodt), from Mons. Firmin Lambeau, Brussels.—One of the finest and most beautiful forms yet seen of this popular hybrid. The large white flowers had the broad labellum mottled and veined with bright rose-purple, a narrow white margin running completely round the edge. In every way a model flower.

AWARDS OF MERIT.

Lælio-Cattleya Firminii var. *ardens*, from Mons. Firmin Lambeau.—A beautiful result obtained by crossing L.-C. *Ceres* with *C. aurea*. The large flowers of rich scarlet-red colour, the lip having yellow discs on the side lobes. The original plant was the subject of a coloured plate in the ORCHID WORLD, June, 1911.

Odontioda Madeline "Prince of Orange" (*Charlesworthii* × *crispum*), from Charles J. Phillips, Esq., The Glebe, Sevenoaks.—A very wonderful result, in which the scarlet colour of the *Odontioda* has given place to an orange-yellow tint. The labellum well developed.

Sophro-Cattleya Saxa "Orchid Dene var.," from E. H. Davidson, Esq., Borlases, Twyford.—An elegant example of this hybrid. Flower of good colour and with broad segments.

Odontoglossum Aireworth "Goodson's var.," from H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Geo. Day).—A densely spotted form of this pretty hybrid between *crispum* and *Lambeauianum*.

Cœlogyne intermedia (*cristata* × *Mas-sangeana*), from Messrs. J. Cypher and Sons, Cheltenham.—A very interesting plant with racemes of white flowers, the lips with prominent brownish-yellow crests, and the side lobes veined with brown. Sweet scented.

MANCHESTER ORCHID SOCIETY

December 19th, 1912.

MEMBERS of the Committee present: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, J. Cypher, J. Evans, J. Lupton, D.

McLeod, C. Parker, H. Thorp, Z. A. Ward, A. Warburton, and H. Arthur (Secretary)

Large Silver Medals were awarded to Z. A. Ward, Esq., Northenden; A. Warburton, Esq., Haslingden; and Col. J. Rutherford, M.P., Blackburn.

Silver Medals were granted to R. Ashworth, Esq., Newchurch; F. A. Hindley, Esq., Great Horton; G. H. Peace, Esq., Monton Grange; Messrs. J. Cypher and Sons, Cheltenham; and Messrs. A. J. Keeling and Sons, Bradford.

Bronze Medals were awarded to Rev. J. Crombleholme, Clayton-le-Moors; and H. Arthur, Esq., Blackburn.

A Special Vote of Thanks was accorded to O. O. Wrigley, Esq., Bridge Hall, Bury.

AWARDS.

FIRST-CLASS CERTIFICATE.

Cypripedium Goliath (*Amy Moore* × *insigne* Harefield Hall), a magnificent well-balanced flower, from W. R. Lee, Esq., Plumpton Hall, Heywood.

AWARDS OF MERIT.

Cypripedium Fouldsianum (*Fascinator* × *Clinkaberryanum*), from J. H. Craven, Esq.

Odontoglossum Wilckeanum, from Z. A. Ward, Esq.

Cypripedium hybrid, from A. Warburton, Esq.

Lælio-Cattleya Goldfinch "Ashlands variety," from R. Ashworth, Esq.

Cymbidium woodlandense (*Tracyanum* × *Mastersii*), from H. Arthur, Esq.

January 2nd, 1913.

MEMBERS of the Committee present: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, J. Cypher, A. Hanmer, F. A. Hindley, D. McLeod, C. Parker, H. Thorp, Z. A. Ward, A. Warburton, and H. Arthur (Secretary).

Large Silver Medals were awarded to Z. A. Ward, Esq., Northenden; R. Ashworth, Esq., Newchurch; A. Warburton, Esq., Haslingden; Col. J. Rutherford, M.P., Blackburn; and Messrs. J. Cypher and Sons, Cheltenham.

A Silver Medal was granted to F. A. Hindley, Esq., Bradford; and Bronze Medals

to Rev. J. Crombleholme, Clayton-le-Moors; and H. Arthur, Esq., Blackburn.

J. J. Holden, Esq., Southport; W. R. Lee, Esq., Heywood; Messrs. Stuart Low and Co. and Messrs. A. J. Keeling and Sons also exhibited.

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontoglossum J. Whitmoyer, a large flower of the amabile type, from Z. A. Ward, Esq.

Cypripedium Lady Dillon magnificum (nitens $\times$ Mrs. Mostyn), a large well balanced flower, from W. R. Lee, Esq.

AWARDS OF MERIT.

Cypripedium Mrs. F. Sander, from J. J. Holden, Esq.

Cypripedium Rossendale, from R. Ashworth, Esq.

Vanda Amesiana albens, from Messrs. Stuart Low and Co.

Oncidium crispum var. The Knowle, and *Gomezia Barkeri*, from Messrs. A. J. Keeling and Sons.

AWARDS OF APPRECIATION.

Lycaste Skinneri var. Her Majesty, from J. J. Holden, Esq.

Cypripedium insigne var. International, from H. Arthur, Esq.

CULTURAL CERTIFICATE

to Mr. Dalgleish, for fine examples of *Cypripedium Leeaeum giganteum* and *C. L. nobilior*.

January 16th, 1913.

MEMBERS of the Committee present: Rev. J. Crombleholme (in the chair), Messrs. J. Bamber, J. Cypher, J. Evans, W. Hatcher, A. J. Keeling, J. Lupton, D. McLeod, W. Morgan, C. Parker, F. K. Sander, H. Thorp, Z. A. Ward, A. Warburton, and H. Arthur (Secretary).

A Silver-gilt Medal was awarded to Z. A. Ward, Esq., Northenden, for a splendid group of well-grown choice *Odontoglossums*.

A Large Silver Medal was granted to A. Warburton, Esq., Haslingden, for a group composed principally of *Cypripediums*.

Silver Medals were awarded to Col. J. Rutherford, M.P., Blackburn, for a fine exhibit of *Lælia anceps*; and to Messrs. J. Cypher and Sons, Cheltenham, for various specimens.

A Bronze Medal was granted to Rev. J. Crombleholme, Clayton-le-Moors, for a neat group of *Cypripediums*.

H. J. Bromilow, Esq., Rainhill, sent *Cypripediums*; H. Arthur, Esq., Blackburn, exhibited *Cypripediums*; O. O. Wrigley, Esq., Bury, staged the rare *Dendrobium Schutzei*; Messrs. Stuart Low and Co., Enfield, exhibited interesting Orchids; Messrs. A. J. Keeling and Sons, Bradford, staged various *Cypripediums*; and Mr. Shackleton, Great Horton, also showed various plants.

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontoglossum amabile var. *Excelsa*, a large good shaped flower, evenly blotched with plum-coloured markings, from Z. A. Ward, Esq.

Cypripedium Princess Patricia of Connaught (*Alcibiades* $\times$ *nitens*), showing the best features of *Alcibiades*, deep coloured spots on a round well-set dorsal, from S. Gratrix, Esq.

Cypripedium Carola (*Thompsonii* $\times$ *Euryades splendens*), a large flower of good shape and substance, dorsal white ground with claret-red markings, from Wm. Thompson, Esq.

AWARDS OF MERIT.

Odontoglossums James Barclay, Violina Henderson, Lord Pirrie, and R. le Doux, all of unknown parentage, from R. le Doux, Esq.

Cypripedium Snowdon Range (*Euryades* $\times$ *Leeaeum*), from S. Gratrix, Esq.

Cypripedium waltonensis var. W. Stevens (*Thompsonii* $\times$ *Rupert*), from Wm. Thompson, Esq.

Odontoglossum Harryano-crispum "Ne Plus Ultra," from Z. A. Ward, Esq.

Brassocattlælia Cooksonii (aurea $\times$ B.-L. Mrs. Gratrix), from Col. J. Rutherford.

CULTURAL CERTIFICATE.

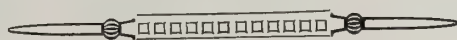
To Mr. Morgan, gardener to H. J. Bromilow, Esq., for a fine plant of *Cypripedium Minos Youngii*.

Vol. 3.

THE ORCHID WORLD.

No. 6.

MARCH, 1913.



NOTES.

ORCHID CATALOGUE.—The new catalogue for 1913, just issued by Messrs. Hassall and Co., Southgate, contains a varied list of the most popular species and a comprehensive selection of the best hybrids. Some 875 items are enumerated.



RECORD BULBS.—Several readers have expressed a doubt regarding the dimensions of the large bulbs mentioned on page 115 of the last issue. We have since had the opportunity of verifying these figures, and also of seeing many other plants with large bulbs nearly approaching these in point of size and vigour.



DENDROBIUM CYBELE ALBUM.—A batch of seedlings of this hybrid *Dendrobium* between *Findlayanum album* and *nobile virginale* has been raised in the Scampston Hall collection. Last spring a few of the strongest plants flowered and proved to be albinos. Mr. F. C. Puddle now writes to say that the whole batch has flowered and all are pure albinos.

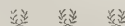


DENDROBIUM PHALÆNOPSIS SCHRÖDERIANUM ALBUM.—A recent issue of *Horticulture*, U.S.A., contains an illustration of this rare albino flowering in the collection of Messrs. Julius Roehrs, Rutherford, N.J., U.S.A. The plant is said to be the largest of its kind in the world, the four tallest bulbs

measuring almost three feet in height. It is now in its third year of flowering, and has increased in size and vigour each season.



ROYAL HORTICULTURAL SOCIETY'S COMMITTEES.—Messrs. W. Watson and W. Jackson Bean, of the Royal Gardens, Kew, have been nominated members of the Scientific Committee; and Messrs. Sidney W. Flory, Twickenham, and G. Hunter, Blenheim Palace Gardens, members of the Orchid Committee.



HOOKE MEMORIAL.—The Council of the Linnean Society have had under consideration the application of the bequest of £100 left to the Society by the late Sir Joseph Hooker, and they have agreed that the most suitable memorial would be an adequately endowed Sir Joseph Hooker Lecture, to be delivered every second, third, or fourth year, and to be published by the Society. They propose that the lecture be on some subject especially associated with the name of Sir Joseph Hooker, and that the lecturer be appointed by the Council, not necessarily from among the Fellows of the Society.



NORTH OF ENGLAND HORTICULTURAL SOCIETY.—The close of the second year of operations shows a paid-up membership of just over 500 Fellows, and a turn-over of £650. The increase in Fellows is nearly

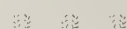
50 per cent., and the number of affiliated societies has been doubled. A portion of the Society's monthly magazine, now under new arrangements, is to be devoted to Orchids. Many of the Fellows are interested in these plants, which have more than once formed the principal exhibits of the North of England shows.



PARTHENOGENESIS IN EPIDENDRUM RADICANS.—Another interesting instance of supposed parthenogenesis has occurred with Messrs. McBean, of Cooksbridge, who attempted to hybridise *Epidendrum radicans* with the pollen of *Bletia Shepherdii*. The pollination duly resulted in a seed pod being formed, and the numerous seeds germinated freely. Of the seedlings which were cultivated, numbering at least one hundred, every one has grown to the height of about four to five feet, and produced flowers precisely similar in form and colour to those of the *Epidendrum* parent. The growth and habit of the seedlings shows no visible sign of the *Bletia* species.

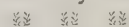


ORCHIDS DAMAGED AT KEW.—Considerable wilful damage has recently been done to the Orchids at Kew. Early on Saturday morning, February 8th, some persons broke into the gardens and attacked the Orchid houses, breaking numerous squares of glass and smashing many of the pots containing valuable specimen Orchids. The fine collection of *Anæctochilus* was specially attacked, and most of the plants in flower were completely spoilt. Altogether, some 136 plants were either destroyed or damaged. The miscreants, who left a card on which was written, "Votes for women," got away without detection.



GIFT OF ORCHIDS TO KEW.—The new Cattleya house will prove a welcome addition to the Gardens, as none of the other houses were specially adapted to the culture of these plants. The structure measures about 47 feet long and 20 feet wide, the height to the top of ridge being 13 feet. Sir George Holford, on hearing that the new house had been built,

generously presented to the gardens a very valuable and varied collection of Orchids. The specimens included *Lælio-Cattleyas*, *Brasso-Cattleyas*, *Cypripediums* and *Cymbidium*s. The good example set by Sir George Holford should act as an incentive to others, for Kew does much towards encouraging a special love of horticulture among the thousands who annually visit these gardens.



THE REFINING INFLUENCE OF ORCHIDS.—One of the most interesting and mind-elevating subjects to pursue in floral culture, either to study by reading about it, or, what is better yet, by practical cultivation, is that of the tropical Orchid. For years I have in diverse ways called attention to this matter in the columns of the *Hartford Times*, Conn., U.S.A., which with its wide circulation has brought responsive answers from far away places and noted cultivators and hybridisers of these beautiful blossoms. I desire to ask: Would it not be untold times better to have conservatories for Orchid growing, with their educational and refining influence, for our public, high and low, at a far less cost to begin with than a \$40,000 pavilion or colosseum-like structure to witness and shelter games and often brutal sports in our Hartford parks? May we all have the opportunity before long to see public Orchid houses in our fine city.—*Wilhelmine Seliger, Hartford, Conn., U.S.A.*



CYPRIPEDIUM CHARLESIANUM.—Mr. E. Hill, of Lynford Hall Gardens, Mundford, Norfolk, kindly sends ten different varieties of this hybrid between *nitens superbum* and *Leeanum Clinkaberryanum*, all of which have come from the same seed pod. It will be seen that three species—*insigne*, *villosum*, and *Spicerianum*—have composed this hybrid, and each one is more or less represented in the various flowers. *Spicerianum* has given a large, white dorsal sepal, and the purple spotting when on this remains quite bright, but whenever it occurs on the lower and yellow portion of the dorsal all the spots become dull brown. This proves what a different ground colour will do.



Phalænopsis Aphrodite, flowering at Messrs. Sander & Sons' Establishment.

ONCIDIODA COOKSONIÆ. — This very remarkable hybrid between *Oncidium macranthum* and *Cochlioda Nœzliana* was shown by Messrs. Charlesworth at the Royal Horticultural Society, February 4th, 1913. The plants carried a long flexuous, many flowered spike, the individual blooms much resembling *macranthum*, but smaller. Sepals dark red, petals lighter and with yellow tips, lip red with yellow crest. This hybrid received an Award of Merit from the Orchid Committee and a Botanical Certificate from the Scientific Committee.



BOTANICAL CERTIFICATE.—For many years the Botanical Certificate has, erroneously, been looked upon as an award to be made to a plant of no decorative or commercial value. The actual intention of the certificate was to encourage the introduction and cultivation of plants of intrinsic interest or of potential value, and it is intended to be awarded to plants of the following designation:—Peculiarity of morphological or anatomical

construction. Noteworthy physiological endowments, adaptation to varying conditions, etc. Novelty, whether of introduction or cultural origin (cross-breeding, hybridisation, variation, selection, etc.). Geographical distribution. Potential value for garden purposes, or economic uses, etc. The Council of the Royal Horticultural Society, at its meeting held April 11th, 1911, decided that the awarding of the Botanical Certificate would be best served if the recommendation of it were restricted to the Scientific Committee. Although this certificate has on numerous occasions been granted to rare species, there are extremely few instances in which it has been conferred upon a hybrid Orchid. Besides the new *Oncidioda Cooksoniæ* we may mention *Epiphronitis Veitchii* (*E. radicans* × *S. grandiflora*), a well-known, but nevertheless curious, hybrid, first shown by Messrs. Veitch, June 24th, 1890, when it received a Botanical Certificate from the Scientific Committee in addition to the First-class Certificate granted by the Orchid Committee.



The Cyripedium House of J. J. Holden, Esq., Southport, Lancs.

THE photograph of our Cyripedium house was taken on January 2nd of this year, and, as you will see, it was one mass of bloom. The display commenced in November and lasted right through the winter months until the end of January.

I predicted, some twenty-six years ago, that the Cyripedium would become one of the most popular winter-flowering Orchids we should possess. I was laughed at at the time, but my prediction has been verified. What a grand thing *C. insigne Sanderæ* is! We have a goodly number of them, and they have flowered wonderfully well. They have been the most attractive Cyripedium this season, the ladies being particularly fond of it. To see it to advantage, it requires interspersing with other varieties, and, to my mind, it is one of the finest Cyripediums ever sent out from St. Albans.

I grow the plants in a compost of two parts loam and two parts best peat, with a little sphagnum moss and coarse silver sand. By

subjecting them to cool treatment I get a sturdy growth with dark foliage, and flower stalks six to seven inches long. Thus, when fully developed, you obtain that beautiful transparent colour which makes them so much to be admired.

ROBERT JOHNSON.

Southport, Lancs.

OBITUARY.—We much regret to record the death of Mr. A. Ryall, a promising young collector, who died at the early age of twenty-seven whilst returning from a plant collecting expedition in Colombia, on behalf of Messrs. Mansell and Hatcher, Ltd. Mr. Ryall gained his early knowledge of Orchids at Messrs. Charlesworth and Co., subsequently working under Mr. Hunter in the Chillingham collection. Some five years ago he was engaged by Messrs. Mansell and Hatcher, and after two years' work with this firm, during which time he acquired a good knowledge of the Spanish language, he was sent out by them

to Colombia, fully equipped as an Orchid collector. His consignments included a very fine type of *Odontoglossum crispum*, which he hunted up after considerable difficulty; a fine lot of *Od. Pescatorei*; *Cattleya Trianae*; a good form of *C. Mendelii*; a splendid type of *C. gigas*, from which have flowered several *Hardyanas*, one of which had white sepals and petals; *Miltonia vexillaria* and *M. Rœzlii*. His best expedition was undertaken two years ago when he went to Antioquia and sent home one of the finest lots of *Cattleya aurea* ever seen. On various occasions he discovered rare and unknown species, many of which on flowering may probably prove to be new, and he carefully noted the conditions and surroundings of the plants' natural home. Ryall encountered many terrible experiences, including the loss of an eye, and although his fearless spirit and strong constitution rendered him particularly fit for his arduous and risky duties, he died on board ship and was buried at sea when within three days' journey of England.



UNEXPECTED COLOUR.—As the progressive work of the hybridist proceeds with astonishing rapidity and the recording of new crosses is almost of daily event, we frequently receive unexpected surprises in the different colours produced by a new combination or arrangement of the pigments derived from the parental flowers. As an example we may instance the recently raised *Odontioda Madeline* (*Odontioda Charlesworthii* × *Odontoglossum crispum*), several of which have flowers with distinct yellow and orange colours. All the forms of *Odontioda Charlesworthii*, without exception, have rich crimson-red flowers, and, at first sight, it is somewhat perplexing to account for a yellow or orange flower being produced from a combination of this hybrid and the white flowering *Odontoglossum crispum*. Closer examination, however, of the *Odontioda Charlesworthii* reveals a certain amount of yellow, especially on the back, and it is quite possible that in the formation of the resulting hybrid, a rearrangement of the cells takes place, and

those containing the yellow pigment are brought to the surface. Professor Weismann, in his "Germ-Plasm," has stated: "If the yellow and red of two different species were blended in the flower of a hybrid, the intensity of both these colours might conceivably be as great as in the parent plant, and yet one of them might predominate because it happened to cover the other." Mr. A. E. Bunyard has shown how, in a section of a petal, these two colours, yellow and red, may be associated in separate but adjoining cell layers in definite patches, and in such a fashion that, when both were exactly superimposed, a very intense colour appeared; while a less exact coincidence would allow the lighter tint to appear between the darker one, and in this way produce more or less marked graduations of tint.



ALBINISM.—Messrs. Sander and Sons have had some interesting results from a batch of hybrids produced by crossing *Lælio-Cattleya Myra* (*L. flava* × *C. Trianae*) with *C. Trianae*. The latter parent had pure white sepals and petals, and a slightly coloured lip. One seedling has given bright golden-yellow flowers of medium size, and another has produced larger flowers with pure white sepals and petals, and a slight tint on the front lobe of the lip; in fact, it much resembles the *Trianae* parent, but the habit of the plant clearly shows the influence of the *flava* species. The combination of the yellow and light purple appears to have produced an albino form, which is worthy of note, and gives support to the theory recently put forth by Mr. Richard G. Thwaites that albino flowers may be produced in this way.

ORCHIDS AT BRUNOY, FRANCE.

Monsieur Chas. Maron, Brunoy, France, has raised a considerable number of Orchid hybrids; in fact, he was one of the earliest to take a special interest in *Brassavola* hybrids. Several of his productions were well shown at the recent International Exhibition, held at

Chelsea, 1912. On other occasions he has staged specimens at the Royal Horticultural Society and at several of the principal Continental shows.

Mons. Maron sends the following list of hybrids with the names under which they have been shown. *Lælio-Cattleya* Alphan (C. *Fabia* × L.-C. *callistoglossa*), shown at Brussels, October, 1910; L.-C. *Pujettii* (C. *Trianae* × L. *superbiens*), Paris, February, 1904; *Cattleya* Murillo (C. *Maronii* × C. *Dowiana* Rosita), Brussels, October, 1910; C. *Sigurd* (C. *aurea* × C. *Enid*), Paris, 1911; *Brasso-Cattleya* Vilmoriniana (C. *Mossiae* × B.-C. Mrs. J. Leemann), Brussels, March, 1910; B.-C. *Dietrichiana* (C. *Fabia* × B.-C. Mrs. J. Leemann), Brussels, March, 1910; B.-C. André Maron (C. *Schröderae* × B.-C. Mrs. J. Leemann), Paris, November, 1911; B.-C. R. Ladames, London, October, 1911; B.-C. *Jupiter* (C. *Luddemanniana* × B.-C. Madame Chas. Maron), Berlin, 1909; *Brasso-cattlælia* Leonardii (B.-L. Helen × C. *Mossiae*), Chelsea, May, 1912; B.-C.-L. *Beaucis* (L.-C. *intermedio-flava* × B.-C. Mrs. J. Leemann), London, October, 1911; and B.-C.-L. *Aurora* (L.-C. *Ernestii* × B.-C. Mrs. J. Leemann), Paris, March, 1911

ORCHID HUNTING.

AN interesting account of Orchid hunting on the Amazon and Negro appeared in a recent issue of the *Times*.

"There is a curious atmosphere of suspense, of hush, in the Amazon forest," says the writer; "the light only reaches one after being filtered through greenery. Noises are few; occasionally a large bird will utter its call, an iguana will rush through the rustling leaves, or some monkeys will chatter as they swing through the creepers overhead.

"Ants swarm on the trees, and nearly all inflict painful bites, and there are as well several kinds of wasp and bee, which either suspend their nests from twigs or else build in rolled-up leaves; all would seem to be the guardians of Orchids, and do their utmost to repel the despoiler.

"Some Orchids always have their roots in ant's nests, and one kind, which I subsequently obtained at the cost of an aching hand, had a little hole at the base of each pseudo-bulb in which a large black ant had its habitation, and of which it proved a most faithful guardian. The Orchid turned out to be an *Oncidium*, with delicate sprays of yellow flowers thickly spotted with chocolate brown.

"Distribution of Orchids. I collected many Orchids and remarked that their distribution appeared to be very local; one day *Cattleyas* abounded on the trees; another day, a few miles further on, only *Schomburgkias* could be found. In one place quantities of *Catasetums* were growing on the ground, beneath little bushes, and in the denser forest near by another variety of *Catasetum* was growing on tree trunks not far from the ground. Of course, this was above high-water level. This last variety has both male and female flowers. The female flowers were borne on a short, thick stalk, and were greenish-yellow bells, while the male flowers were borne on graceful stems and were black with green and white fringes. When touched a tiny portion detached itself and jumped out. One *Cattleya* we were lucky enough to find had great splashes of gold on its rosy-mauve petals and an edging of pure white; evidently a natural hybrid, the strange product of the wanderings and feastings of some great night moth.

"No European who has not himself seen them could credit the myriads of mosquitoes which haunt these forest streams, and as the few inhabitants of these regions are all suffering from malaria great care has to be taken. The noises that all these insects made seemed to rise and fall in waves of sound, now becoming insistently shrill, now dying away to comparative stillness. My companions had fallen asleep in their hammocks; from the river were heard only faint rippling sounds, and I composed myself for sleep. Never was there a greater delusion, it was indeed a *nuît blanche*. It was too dark to see anything; the sound of all this unknown activity had a curious effect on the nerves, and vivid stories of great snakes, of jaguars, and crocodiles came to the mind."

DENDROBIUM THYRSIFLORUM.

DENDROBIUM *thyrsoflorum* owes its specific name to the many thyrses, or dense panicles of flowers, which are produced during the spring-time. By some botanists this Burmese plant has been regarded as a variety of *D. densiflorum*, from which it differs in several important points. Reichenbach, however, separated it as a distinct species, and as such it is generally considered. In both plants the unexpanded racemes have a curious cone-like appearance, probably unique in the genus. This is caused by the flower buds being completely enveloped in and concealed by the large imbricate yellow floral bracts.

D. densiflorum has distinctly four-angled bulbs, whereas *D. thyrsoflorum* has more slender stems, and the floral bracts are much narrower than in typical plants of the former species. Many growers can easily discern the difference between the two species, and when importations of both plants arrive in a mixed state, they have no difficulty in separating them. The two species appear to grow in different localities, and there does not appear to be any evidence that they grow together. *D. densiflorum* invariably has pale yellow sepals and petals, the lip being of a rich orange-yellow, often paler towards the margins.

D. thyrsoflorum has white flowers with a golden-yellow lip, although a few varieties are occasionally seen with a pale lilac suffusion in the sepals. A variety known as *Walkerianum* had stems three feet in height, and the racemes of flowers were two feet long, bearing more than fifty flowers on one

raceme. This may have been an exceptionally strong and recently imported plant, and there is no record that such a vigorous state was maintained. Our illustration shows *D. thyrsoflorum* flowering in the collection of E. H. Andriesse, Esq., Dampit, Java.



Dendrobium thyrsoflorum, in the collection of E. H. Andriesse, Esq., Dampit, Java.

D. Farmeri has prominently angled bulbs of 12 to 18 inches in height, and is in many ways similar to the above species. The raceme is more loosely flowered, the sepals and petals when first expanding are often of a pale mauve colour, which changes in the course of a few days to pure white. The lip is of a deep rich yellow, the margin often pure

white. Owing to this change of colour much confusion has arisen, the plants often being mistaken for *D. thysiflorum* when the flowers are in a white state, and for *D. densiflorum* when the flowers are yellow. *D. Farmeri aureo-flava* has been used to denote a Burmese variety in which the flowers are wholly yellow. The variety *parviflora* has been given by Regel to a smaller flowering type.

All these Burmese *Dendrobiums* require a very hot and moisture-laden atmosphere for their cultivation during the growing season. Plenty of sunshine is required to ripen their bulbs, on the completion of which the plants may be kept in a lower temperature and under drier atmospheric conditions until after their flowering season.

CYMBIDIUM HYBRIDS.

IN view of the great interest now being taken in *Cymbidium* hybrids the following particulars are of interest:—

Cymbidium eburneo-Lowianum (*eburneum* × *Lowianum*). This very beautiful hybrid was raised by Seden and exhibited by Messrs. Veitch and Sons at the Royal Horticultural Society, March 12th, 1889, when it was awarded a First-class Certificate. *C. Lowianum* *concolor*, a variety without the usual red blotch on the lip, has also been used, but in most cases the blotch is perpetuated in the resulting hybrid.

C. Winnianum (*giganteum* × *Mastersii*). This hybrid originated in the collection of Mr. Charles Winn, Birmingham, and a specimen plant with five flower spikes was shown at the Royal Horticultural Society, November 1st, 1892, by Messrs. Sander and Sons.

C. Maroni (*grandiflorum* × *Mastersii*). A comparatively long period elapsed from the flowering of the second hybrid until *C. Maronii* made its appearance in 1900, when it flowered with Mons. Ch. Maron, Brunoy, France.

C. Lowio-Mastersii (*Lowianum* × *Mastersii*). This, the third raised garden hybrid from *Mastersii*, was exhibited by Messrs. Charlesworth and Co., Royal Horticultural Society, February 11th, 1902, when it received an Award of Merit.

C. Lowio-grandiflorum (*grandiflorum* × *Lowianum*). Another of Messrs. Veitch's interesting hybrids, and shown by them at the Royal Horticultural Society, February 11th, 1902, when an Award of Merit was obtained for the plant.

C. Wiganianum (*eburneum* × *Tracyanum*). Messrs. Sander and Sons first flowered this hybrid, February, 1902.

C. Lowgrinum (*tigrinum* × *Lowianum*). Mr. R. I. Measures bloomed this hybrid, March, 1903.

C. Tracyano-giganteum (*Tracyanum* × *giganteum*). An elegant plant first flowered by Mr. J. T. Bennett-Poe, December, 1903.

C. woodlandense (*Tracyanum* × *Mastersii*). A very interesting hybrid, flowered by Messrs. Sander and Sons, October, 1904.

C. eburneo-giganteum (*eburneum* × *giganteum*). Received an Award of Merit, Royal Horticultural Society, February 13th, 1906, when exhibited by Messrs. Charlesworth and Co.

C. Holfordianum (*eburneum* × *grandiflorum*). One of the finest of the *eburneum* crosses. The plant was shown by Messrs. Sander and Sons at the Royal Horticultural Society, February 13th, 1906, when a First-class Certificate was awarded.

C. Colmaniae (*eburneo-Lowianum* × *eburneum*). A very pretty hybrid, first shown by Sir Jeremiah Colman, Bart., Royal Horticultural Society, May 1st, 1906, when it received an Award of Merit.

C. Cravenianum (*Lowianum* × *Tracyanum*). First shown by Messrs. Mansell and Hatcher, Royal Horticultural Society, December 9th, 1906.

C. Woodhamsianum (*Lowianum* × *eburneo-Lowianum*). First flowered by Messrs. Armstrong and Brown, March, 1907. An Award of Merit was given to the Orchidhurst variety of this hybrid, February 23rd, 1909.



Cymbidium Wiganianum (*eburneum* × *Tracyanum*).

A fine variety, in the establishment of Messrs. J. & A. McBean, Cooksbridge. Flower greenish-yellow, with red spotting on lip.

C. gattonense (*Lowianum* × *Tracyanum*). Received an Award of Merit, Royal Horticultural Society, January 28th, 1908. Owing to the parentage being similar to that of *C. Cravenianum* this hybrid must now be considered a variety of it.

C. Lady Colman (*eburneo-Lowianum* × *Tracyanum*). A very beautiful hybrid, which received an Award of Merit when exhibited

by Sir Jeremiah Colman, Bart., Royal Horticultural Society, February 11th, 1908.

C. rosefieldiense (*Tracyanum* × *grandiflorum*). This elegant hybrid was raised by Mr. de Barri Crawshay, and first flowered December, 1909. An Award of Merit was granted to the plant, January 9th, 1912.

C. Pluto (*Mastersii* × *Tracyanum*). Raised in the Westonbirt collection and flowered

December, 1910. The parentage is the same as that of *C. woodlandense*, of which it must now be considered a variety.

C. glebelandense (*Schröderi* × *insigne*). The first hybrid from the newly introduced *insigne*. Flowered by Mr. J. Gurney Fowler, January, 1911. *C. Schröderi* is an Annam species allied to *giganteum* and *Lowianum*, but has smaller petals. It first appeared in Baron Schröder's collection, April, 1905.

C. Pauwelsii (*insigne* × *Lowianum*). Exhibited by Messrs. Pauwels, Royal Horticultural Society, February 14th, 1911, when it received an Award of Merit.

C. langleyense (*Lowianum* × *Devonianum*). A very interesting hybrid, raised by Messrs. Veitch, and shown at the Royal Horticultural Society, February 28th, 1911, when it obtained an Award of Merit.

C. Alexanderi (*eburneo* - *Lowianum* × *insigne*). A beautiful result, named in honour of the raiser and exhibited by Lieut.-Col. Sir George Holford, Royal Horticultural Society, March 14th, 1911, when an Award of Merit was secured.

C. Gottianum (*eburneum* × *insigne*). Exhibited by Messrs. Sander and Sons, and received an Award of Merit, Royal Horticultural Society, March 14th, 1911.

C. Schlegelii (*Wiganianum* × *insigne*). An elegant hybrid, raised by Messrs. McBean, and shown by them at the Royal Horticultural Society, January 23rd, 1912, when it received an Award of Merit.

C. Doris (*Tracyanum* × *insigne*). One of the best of the *insigne* crosses. Received First-class Certificate, Royal Horticultural Society, October 22nd, 1912, when exhibited by the raisers, Messrs. J. and A. McBean.

The following are natural hybrids:—

C. Ballianum (*eburneum* × *Mastersii*). The parentage has never been proved, but as both species grow together there appears every reason to believe that it is correct.

C. Gammieanum (*giganteum* × *elegans*). The flowers of this hybrid combine the characters of both species, and as these grow together in Sikkim the parentage may be taken as correct. The plant is dedicated to Mr. J. A. Gammie, of the Government Cinchona Plantation in Sikkim.

C. Maggie Fowler (*giganteum* × *elegans*) was exhibited by Mr. J. Gurney Fowler, Royal Horticultural Society, October 24th, 1905, when it received an Award of Merit. If the suggested parentage proves correct it must be considered a variety of *Gammieanum*.

C. l'Ansonii (*Lowianum* × *Tracyanum*). This natural hybrid has appeared on more than one occasion, and although it is as yet imperfectly understood, the suggested parentage is believed to be correct.



Cymbidium insigne, photographed from a specimen in the collection of Count Joseph de Hemptinne, St. Denis, Westrem, Ghent.



Cymbidium Lowianum, an easily grown cool-house Orchid.

We are indebted to the Editor of the "Journal of Horticulture" for kind permission to reproduce the Illustration.

ORCHIDS FOR AMATEURS.

CYMBIDIUMS may well take an honoured place in the amateur's collection. Their elegant foliage and general stately appearance leaves little to be desired, and their culture is by no means difficult; as a matter of fact, they have been seen growing vigorously in houses which at first sight seem quite unsuitable for Orchid culture. No amateur need hesitate to acquire a representative selection from this genus, for whether they be species or hybrids, almost all give excellent results in the production of long-lasting flowers.

In the way of potting material no difficulties will be encountered, almost any open compost will suit their requirements. Naturally, one desires to know which is the best material to use in order to obtain the finest results; a mixture of about one-half good fibrous loam and the other half rough peat or osmunda fibre is quite suitable. The old compost from Cattleyas and Odontoglossums, so long as it is not too rotten, may be saved for working in with the Cymbidium mixture, and some slight saving in the cost of potting material is an item well worthy of the small amateur's attention. Sphagnum moss is not really necessary, but when a plentiful supply can be obtained its use is frequently beneficial during the hottest and driest days of summer, when its moisture holding nature assists in keeping the compost in a suitably moist condition.

Cymbidiums are coarse rooting plants and require large pots for the accommodation of their roots. When so treated the plants make rapid headway, and large specimens are rapidly produced. No doubt the finest flowering results are obtained when a strong plant has practically filled its pot with roots, and so vigorous is this root action that it is often found impossible to repot the plant without breaking the old pot and removing the pieces separately.

Cymbidiums are among the few Orchids which may receive weak supplies of liquid manure without detrimental effect. But even with these plants careful attention is always required to see that they do not suffer from

too strong a dose or too frequent application. Plants which have been recently potted never require this extra stimulation; it is only those that have completely filled their pots with roots and need some nutriment to take the place of the exhausted compost. Manurial aid often produces very vigorous growth during one season, often making the plant overgrow itself, with the inevitable result that diminutive growth is made during the following season. Oftentimes the plant is poisoned, and recovery well nigh hopeless.

The following species are quite suitable for cool house treatment:—*C. eburneum*, a beautiful North Indian plant with creamy-white flowers borne on erect stems; *giganteum*, an elegant species from the same country, and having long spikes of yellowish-green flowers striped with reddish-brown; *grandiflorum*, also known as *Hookerianum*, a magnificent plant from the Himalayas, the flowers of which are very large, with green sepals and petals, and the immense lip yellow marked with red and crimson-purple. *Lowianum* is a Burmese species, somewhat similar to *giganteum*; the front lobe of the lip has a crimson blotch, but this is absent in the variety known as *concolor*; *tigrinum* comes from Moulmein, and has olive-green sepals and petals, the lip marked with white and purple. *Tracyanum* is a native of Burma and is in every way a most desirable species; the large flower has an elegant hairy lip.

Cœlogyne cristata is known to all Orchidists, yet there may be a few amateurs who have not so far included this North Indian species in their collection. The plant has the peculiar habit of crowding its bulbs to a remarkable degree, these frequently growing one upon another until an almost solid mass is produced. The best flowering results are always obtained when the plant reaches this congested state, and has had but little root disturbance. As this species is so plentiful and, consequently, of comparative cheapness, there is no need to attempt its propagation by repeated division of the plant. The most satisfactory method of culture

is to keep the plants in masses as large as is conveniently possible, and in this way a good supply of bloom is generally produced.

During the summer and growing season a cool atmosphere and plenty of moisture are required to ensure large bulbs being made. On completion of growth the plants should be placed in a drier and warm position, where they may remain during their winter period of rest. Many cultivators reap success by growing the plants in the *Odontoglossum* house during the summer, and resting them in the *Cattleya* house during the winter time. By this method a fairly regular temperature is maintained. The flower-spike buds are frequently injured when the winter temperature drops too low, and the consequent inability of the plants to produce flowers in the early spring is a constant source of disappointment to many amateurs, who cannot understand the cause of their failure.

The flowers are arranged six to eight together on a drooping raceme produced from

the base of the bulbs; the blooms are pure white, with a prominent blotch of yellow on the crest of the lip. The variety *alba* is entirely pure white, and is one of the few albino Orchids in which the yellow pigment is absent. *Dendrobium nobile virginale* may here be mentioned as another example of the peculiarity of producing entirely pure white flowers.

Sophranitis grandiflora is quite a little gem; its brilliant scarlet flowers are much admired, coming, as they do, in the dull winter time. The species is a native of Brazil, but grows with freedom in the cool house, especially if placed in small pans and suspended from the roof. Nothing looks finer than a well-cultivated specimen smothered with these brilliant blooms. There are several distinct types, and the amateur would be well advised to purchase only plants of which he has seen the flower. A really good shaped variety is worthy of special attention, and there is little difficulty in disposing of propagated pieces.

THE UTILITY OF OLD BULBS.

IT is somewhat difficult to determine the precise age to which an Orchid bulb may attain before the term old may be correctly applied. Growers have varied in their ideas to the extent of several years, but for general purposes one may safely define the age as one of at least four years. Very much of the success in growing Orchids to their highest state of perfection depends upon the condition of these old bulbs. If they are vigorous and give assistance to the new growth their retainment is advisable, but if, as often happens, they use for their subsistence food which should go to the formation of the new bulb then their removal is justified. The cultivator needs to carefully consider the factors that determine whether he should separate the old bulbs from the newly formed portion, or whether their continued attachment will be beneficial to the future growth of the plant. The general belief, more especially among older cultivators, is that the

greater the number of bulbs the stronger and more valuable must be the specimen. Happily, the present-day and younger growers fully realise the erroneousness of this idea, and their continued success in the production of remarkable plants gives additional proof of the correctness of their opinion that old bulbs frequently act injuriously on the new growth and bulb.

There is no need to search far for material that will help us in obtaining a clear comprehension of the matter. Almost every collection contains a plant, either species or hybrid, consisting of about eight successively formed bulbs, the back or old ones of which are fairly plump and, therefore, naturally lead us to suppose that their apparent healthy and vigorous condition is of assistance to the leading growth. To prove whether this be a fact or not, the rhizome, or horizontal stem connecting the bulbs at their base, should be severed at a place that will separate three or

more of the oldest bulbs. If these forthwith commence to shrivel it is a sure sign that they have been deprived of their source of nutriment. In other words, it gives good proof that they have been living upon the newer and well-rooted portion. From these facts it is easy to infer that their connection with the leading growth must have been prejudicial.

Now if these old bulbs were well supplied with active roots they could easily maintain themselves in plump condition, but their rapid shrivelling proves conclusively that they are without these organs of nutrition. The removal of these old bulbs effectually discontinues the serious drain which they make upon the newly-formed portion, with the result that the roots are able to give the whole of their power to support the recently made bulbs and to nourish the new growth.

If, however, the old bulbs which have been separated remain in a plump condition we have evidence that they are self-supporting in their manner of life, and are not likely to visibly injure the new growth. In some plants it is quite possible that the roots still attached to the old bulbs are extremely vigorous, and when so they may be able to give extra assistance to the new growth. In these cases, which are exceptional, it would not be good policy to divide the plant.

The foregoing remarks apply more especially to plants which have been under cultivation for a period of four or more years. Let us now consider more intimately examples from recently imported plants. For the first few months, sometimes as long as a year, the large supply of reserve material in the bulbs greatly assists the new growth, and it is more than probable that this nutriment having been collected in the plant's natural home is more suitable than that made under artificial conditions. Orchid growers frequently notice how strongly made are some of the new growths produced from recently imported plants. They are full of native vigour is a common expression.

Now the new growth requires a considerable amount of this reserve food for its completion, most of which is taken from the

old bulbs. In due course roots are emitted from the newly-made bulb, and these have not only to supply it with food but have also the great task of replenishing the shrivelled back bulbs. The question then arises: Is it necessary that these old bulbs should be resuscitated? Have they not answered their purpose in supplying the new growth with food until such time as it is able to make new roots and gather its own? Their removal at this period would enable the whole of the nutriment secured by the roots to go to the formation of the new growth, an occurrence which must result in a stronger plant being produced. Old bulbs when once they have lost their store of food seek every opportunity to replenish it, and the first chance they have is when the new growth commences root action. These old members of the plant thus steal the food intended for the young generation.

Orchidists are well aware of the fact that they cannot often obtain an abundance of flower and rapid enlargement of the plant during the same year. One must give place to the other. Everyone knows full well that if the flowers are cut soon after opening very little loss of vigour to the plant will result. But there are occasions, as, for instance, important exhibitions, when the flowers are required to last in perfection for many days, and frequently have to be kept for a week or more until the appointed date. With such great events it is usual for considerable preparations to be made. Plants are often selected a year or more in advance and grown purposely for the occasion. Here we have a special use for plants which have not been divided. The more storage capacity they have so much the longer will they be able to continue the supply of food to the open flowers, and, consequently, so much the longer will the blossoms last in perfection. It will thus readily be seen that old bulbs, so long as they are healthy, may be utilised to act as reservoirs for collecting the nutriment formed during an extensive period of culture, such a reserve amount of food being absolutely necessary when unusual and lengthy periods of floral display are required.

ORCHIDS: THEIR POPULARITY AND CULTURE.

THE Bath Gardeners' Mutual Improvement Association had the pleasure, on February 13th, of hearing Mr. H. G. Alexander give a lecture on "Orchids: Their Popularity and Culture." The following are some of the principal points touched upon by the lecturer:—

In the early days, Orchids, as soon as received, were consigned into houses wherein a hot, steamy atmosphere without ventilation was maintained at all times, a method adopted to imitate the damp, close jungle in which all tropical Orchids were then supposed to have their home. It was towards the middle of the nineteenth century when a change of system in growing Orchids was brought about by cultivators, who, grasping the truth that more attention should be paid than hitherto to the climatic conditions under which the plants grow at the various altitudes in the Tropics, altered their cultural treatment accordingly, and kept a more reasonable temperature by admitting fresh air into the houses.

There is no branch of modern horticulture that exhibits such wonderful progress as that of the cultivation of Orchids. Their popularity to-day is greater than any other class of plants that require to be grown under glass. It is by no means necessary to have a complete range of greenhouses before embarking on their culture. True it is that numerous structures, with their various atmospheres and temperatures, may be necessary for the man who grows a thoroughly representative collection of the family, but, as many of the plants requiring this extreme treatment are more curious than beautiful, it will readily be seen that such elaborate preparations are not really necessary. Anyone wishing to add grace to the ordinary run of greenhouse plants will find one or two houses amply sufficient to successfully grow a very large and representative collection of beautiful Orchids.

If only one house is devoted to their culture, the amateur would be well advised in keeping this at an intermediate temperature, that is, a minimum winter temperature of

50 to 55 degrees at night, and 55 to 60 degrees by day; these figures to rise in summer 5 degrees by artificial heat, and up to 80 degrees when the sun is bright. In this house it is possible to grow a great variety of Orchids, including some of the showiest and most beautiful kinds in existence. Cattleyas, Lælias, and their numerous hybrids, are a host in themselves, keeping up a succession of gorgeous flowers the whole year through. Dendrobiums of many beautiful kinds may also be included, leaving out such kinds as any that require the strongest heat. The beautiful blue Orchid, *Vanda cœrulea*, and that other lovely autumn-flowering kind, *Vanda Kimballiana*, will both make themselves at home in this temperature. *Cypripediums* are, perhaps, amongst the most useful Orchids under cultivation. In short, there is no lack of beautiful and easily-grown Orchids, be it for the cool, intermediate, or warm house. In contrast to the very high price paid for novelties is the very cheap rate at which these popular species and hybrids can now be obtained.

Taking into consideration the nature and general character of Orchids, especially the epiphytic species, one does not wonder that to master the essentials of their successful cultivation a longer time is required than is the case with other plants. Growers fail to recognise the treatment necessary to enable them to keep their plants in a thriving state for an indefinite period. It does not require more than an ordinary acquaintance with Orchids to see by the character of their growth that Nature has made a special provision for their continual existence. In the bulbous species the roots which nourish the plant are confined to the newly-made pseudobulbs, while the roots of the back bulbs die after a lapse of time, but the better the cultivation the slower the decay.

In the bulbless species, *Vandas*, etc., the natural provision for their existence is equally apparent. The lower part of the stems, after the leaves and roots they produced are decayed, die gradually upwards, but the upper

part is quite independent of the dead portion below, which has simply to be removed to enable the plant and its source of nourishment to be again brought in contact.

It is impossible to lay down any rules as the best for the culture of Orchids. The plants are often found thriving under such very opposite treatment, and as one cannot be certain that the conditions and surroundings are in all cases precisely similar, much more can be done by suggestions than by definite advice. Observation and common sense are very important factors if combined with that system of culture, the nearest to nature.

Nothing is more injurious to the plants than too high a temperature; many would be far better in cooler quarters than are at present allowed. A very important matter is to see that a lower temperature is kept at night than in the day, for nothing is more injurious than anything contrary to natural conditions. So sensitive are all plants, and especially Orchids, to atmospheric influence, that no matter how well they are treated in other ways, they cannot long continue in a satisfactory condition unless a proper atmosphere is maintained about them. The state of the atmosphere is of equal, if not of greater, importance than the potting compost.

Light, the very life of most plants, is less under our control than any other factor. Possibly in no other detail are Orchids so liable to be mismanaged as in respect to shading. All young growers should make a special point of grasping the full value of light. There are few growers engaged to-day in Orchid cultivation who have not noticed during the past season the healthy vigour and growth of nearly all Orchids that benefit by heat and sunshine, sure evidence of how very beneficial was the hot weather of 1911, when during that rare and ideal summer we enjoyed in this country so many months of brilliant sunshine. The season of 1912 will not give us such satisfactory results.

The watering of Orchids is one of the most important operations connected with their culture. The majority of the terrestrial kinds require proportionally more water at the roots than the epiphytic kinds. The family of

Cattleyas and Lælias require comparatively little water at their roots, the only exception being in the height of their growing season. If furnished with plenty of live roots they seldom shrivel, even when the pots show scarcely a vestige of moisture. The roots already in the dry material continue to grow, unmistakable evidence of the condition favourable to the health of the plant. In nine cases out of ten the season's growth precedes root action by a longer or shorter period, and in this matter of watering we should be guided by Nature, only supplying water in quantities to the roots when it is seen by their activity that increased quantities are called for by the demands made on the plants by developing growth.

While there is no royal road to Orchid culture other than the long and certain one of observation and practical experience, Orchids can be successfully grown by the gardener who is a good cultivator of greenhouse plants if he takes to them and really studies their wants. And since so many of the most showy and useful kinds are sold so cheaply, a large measure of quiet enjoyment can be derived from these interesting plants without extravagant expenditure.

The one matter which has, more than any other, revolutionised Orchid culture is the art of hybridising and raising seedlings. This important part of Orchidology has created an entirely new interest, and fanciers are no longer dependent on importations of the plants from foreign countries. At the present time seedling Orchids are raised freely, and these home-raised plants are more easily cultivated than imported plants, naturally so because they are acclimatised from birth.

This combination of circumstances could scarcely fail to make for advancement, and it is to these, together with the reduction in price, and last, but not least, to the intelligence and sagacity of our practical growers on whom laid, in the past, the responsibility of cultivating rare and costly collections, that the wonderful progress is due, and which has exploded for ever the idea that England is, as Sir Joseph Hooker once observed, the grave of tropical Orchids.



Cattleya Lord Rothschild albescens.

A fine example from the Establishment of Messrs. J. & A. McBean, Cooksbridge.



Brasso-Cattleya Menda.

*A beautiful hybrid, in the collection of Pantia Ralli, Esq., Ashlead Park, Surrey.
Received First-class Certificate, Royal Horticultural Society, February 18th, 1913.*

CATTLEYA LORD ROTHSCHILD.

(See *Illustration*.)

THIS elegant hybrid between *C. Gaskelliana* and *C. aurea* was first raised and flowered by Messrs. Sander and Sons, October, 1893. *C. Gaskelliana* being a summer-flowering species and *C. aurea* an autumn-flowering plant, it is not often that both species can be obtained in flower at the same time, so that the hybrid is likely to remain comparatively rare. The difficulty is sometimes overcome by obtaining a late blooming plant of the former parent and an early flower of the *aurea*, or, as is now frequently done, the pollen of the *Gaskelliana* may be preserved until the autumn, when its vitality is usually sufficient for fertilisation, although it must be said that the best and most fertile seed pods are formed when the pollen is fresh.

The increasing difficulty which hybridists experience in making new primary crosses is largely due to the fact that the number of good species is strictly limited. This scarcity of new material has induced them to re-make many of the older hybrids by the use of only the finest varieties of the species in question, and this is partly why we find that a rise in value has taken place in extremes of the type. On the one hand we see very dark, richly coloured forms of *Gaskelliana* producing hybrids similarly coloured, as, for example in the Westonbirt variety of *C. Lord Rothschild*, and, on the other hand, the use of *Gaskelliana alba* has created many very delicate and albino forms of the same hybrid.

The illustration in this issue depicts a very beautiful variety of *C. Lord Rothschild* named *albescens*, a term now used to denote flowers which are not entirely white, although in this example the sepals and petals are pure white and the lip slightly marked with rose-purple. The term *alba* should only correctly be applied to flowers entirely without the purple pigment.

To Messrs. J. and A. McBean, Cooksbridge, is due the credit of raising and flowering this beautiful *albescens* variety, which also is remarkable for the large amount of bright

golden-yellow colour to be seen on the larger part of the labellum. It is interesting to note that almost all the seedlings which have so far flowered from this pod are equally beautiful and distinct in the way of the golden-yellow labellums.

BRASSO-CATTLEYA MENDA.

(See *Illustration*.)

A very beautiful addition to the hybrids of *Brassovola Digbyana* was exhibited at the Royal Horticultural Society, February 18th, 1913, by Pantia Ralli, Esq., Ashted Park, Surrey, who received a First-class Certificate for *Brasso-Cattleya Menda*, a new hybrid obtained by crossing *Cattleya labiata* with *Brasso-Cattleya Digbyano-Mossiae*. Albino varieties of both parents were used, resulting in a very choice and beautiful pure white flower, the only exception being a very bright purple blotch on the centre of the labellum, which gives to the bloom a singularly attractive appearance. The pretty fringe to the labellum imparts a finishing touch of elegance to the flower, and another gem has been added to the Ashted Park collection, so ably managed by Mr. S. Farnes.

NEW HYBRIDS.

LÆLIA SUSANNA.—A very interesting hybrid between *L. pumila* and *L. Dayana* has been raised by Mr. Eustace F. Clark, of Ever-shot, Dorset. The parents are very closely allied, but *Dayana* is easily distinguished by the prominent purple keels on the lip. These are well inherited in the hybrid, although to a lesser degree. The shoulders and front lobe of the lip are rich purple, the upper part of the throat bright yellow. The two parents are sometimes considered as varieties of the same species, and if Mr. Clark's flower had been discovered in an importation of the plant it would have been taken by some students as a proof that the two cannot be definitely separated. *L. pumila*, *L. Dayana*, and *L. præstans* are now generally given specific rank.

ODONTOGLOSSUM CASSANDRA.—Mr. de Barri Crawshay has raised this interesting hybrid by crossing *Urania* with *crispum*. The former parent is *crispum* × *cristatellum* (*cristatum* × *Kegeljani*). The flower of *Cassandra* is creamy-yellow with purple-brown spots and blotching. Lip broad at apex, and with a very spiny crest.

ODONTOGLOSSUM CALYPSO.—The result of crossing *triumphans* and *Lambeauianum*, this hybrid has recently flowered in Mr. Crawshay's collection at Sevenoaks. The light yellow ground of the flower is evenly marked with reddish-brown blotches. The lip has the characteristic blotch of *triumphans*.

DENDROBIUM CREOLE.—This pretty hybrid, reminding one of a richly coloured nobile, has been raised by Mr. F. C. Puddle in the Scampston Hall collection. The parentage is *Dominianum* (*Linawianum* × *nobile*) and *nobile virginalae*. The violet-purple colouring on the tips of the segments is very effective. The cross was made to prove the influence of *nobile virginalae*, but this albino character has been entirely lost in the seedling.

ODONTOGLOSSUM CLARE.—One of the prettiest of the *cirrhosum* hybrids has just flowered in the Warnham Court collection, Horsham. The parents are *cirrhosum* and *Ossulstonii* (*Pescatorei* × *crispo-Harryanum*), and the flower much resembles a glorified *cirrhosum*. The rather narrow, pointed segments are prettily twisted at their tips, and the rose-purple blotching is regularly arranged on a white ground.

CATTLEYA IANTHE.—A new hybrid between *C. Mossiæ* and *C. Macænas* (*Warscewiczii* × *superba*) has been raised and flowered by Messrs. Veitch and Sons, the large rose-purple sepals and petals making a pleasing contrast to the richly coloured violet-purple lip. Messrs. Veitch first flowered *C. Macænas* in 1895.

ODONTIODA DON.—This hybrid between *C. Nœzliana* and *O. Lindleyanum* cannot be classed with the best of the *Odontiodas*. The starry nature of the flowers with their dingy colour is not very attractive. Recently flowered by Messrs. J. and A. McBean, Cooksbridge.

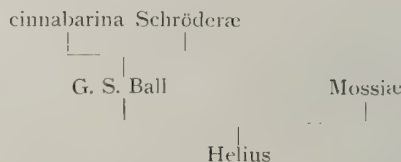
ODONTOGLOSSUM CLEOPATRA.—*Carmania* (*Harryanum* × *cristatellum*) × *Vuylstekei* are the parents of this hybrid which has recently been raised by Mr. Crawshay. The slightly incurved petals and the orbicular labellum are handsomely marked with crimson-brown. Apex of lip white.

BRASSO-CATTLEYA MARILIANA.—An elegant hybrid between *B.-C. Mariæ* (*Digbyana* × *Warneri*) and *C. Percivaliana* has been raised by Mr. F. C. Puddle in the Scampston Hall collection, Rillington, York. The large, bright rose-purple flower has the margin of the petals and lip prettily crisped and minutely fringed. The throat of the rich purple lip is orange-yellow.

LÆLIO-CATTLEYA MANTINENSIS.—Messrs. J. and A. McBean, Cooksbridge, have produced this useful and variable hybrid by crossing *C. Mantinii* with *L.-C. Behrensiana*. The flower is an improvement on *Mantinii*, and the hybrid is a robust grower.

LÆLIO-CATTLEYA HELIUS.

(See Coloured Plate.)



HELIUS, the Greek name of the sun, has been well applied to this wonderful hybrid with its golden-yellow and sun-coloured tints. Although the production of large yellow-flowering *Cattleyas* has been attempted by almost every hybridiser, and various methods have from time to time been suggested, we are still without any definite means by which our object may be secured. It has been said that all—and these are very few—our successes in obtaining these rarities are instances of good luck, or of the laws of chance over which we appear to have no control. Whatever amount of truth there may be in these statements is of little consequence. One thing remains certain, that before any success is obtained some suitable substance or



M. Walter & Son 1912

LÆLIO-CATTLEYA HELIUS.

factor must be in the material from which we are to construct our anticipated yellow flowering Orchid.

On previous occasions we have remarked on *Lælia Cowanii*, *L. harpophylla*, and *L. xanthina* as being suitable species for producing a yellow flower. *Lælia cinnabarina*, however, although containing red and yellow, has invariably been used with the idea of bestowing a reddish tint, and, it must be said, with no small amount of success, but in this instance its powerful influence has resulted in the yellow colouring matter being spread over the whole of the large flower derived from the combination of *Mossia* and *Schröderæ*. The rich red of the *cinnabarina* parent has almost disappeared, leaving only the yellowish portion to be carried forward, most probably by the influence of the *Schröderæ*, for this latter species has a wonderful effect in varying the colour in hybrids of which it is a parent. It is a well-known fact that great diversity appears in the numerous hybrids known as *Lælio-Cattleya* G. S. Ball (*cinnabarina* × *Schröderæ*), and also in *L.-C. Fascinator*

(*purpurata* × *Schröderæ*). One does not like to suggest how this variation in colour takes place, or in how many of the seeds from this pod it is likely to occur.

The variety of *Helius* represented in our coloured plate may be the only example of its kind possessing such remarkable colour, or others may eventually flower of somewhat similar design. A large number of seedlings have been raised, all showing more or less the distinct *cinnabarina* habit of growth, and of those which have flowered, now a considerable number, no other in any way approaching our illustration has appeared. *Lælio-Cattleya Helius* has been raised by Messrs. J. and A. McBean in their extensive establishment at Cooksbridge, where the numerous plants of this hybrid are being grown. The superb and remarkable variety, so well reproduced in our coloured plate, has passed into the valuable and renowned collection of Baron Bruno Schröder, where its sun-like nature imparts increasing radiance to the many other heavenly flowers that never fail to welcome the sunshine of the sky.

ROYAL HORTICULTURAL SOCIETY.

February 4th, 1913.

MEMBERS of the Orchid Committee present: J. Gurney Fowler, Esq. (in the chair); Mr. Jas. O'Brien (hon. sec.), Sir Jeremiah Colman, Bart., Sir Harry J. Veitch, Messrs. de B. Crawshay, Gurney Wilson, J. S. Moss, W. H. White, A. Dye, J. E. Shill, J. Cypher, H. G. Alexander, J. Charlesworth, F. Sander, F. J. Hanbury, S. Low, J. Wilson Potter, W. Cobb, T. Armstrong, W. Bolton, R. A. Rolfe, W. H. Hatcher, C. H. Curtis, and C. J. Lucas.

Messrs. Charlesworth and Co., Haywards Heath, were awarded a Silver Flora Medal for an attractive group of excellent hybrids. Of special merit were *Oncidioda Cooksonia* and *Oncidium splendidum aureum*, the latter a very rare albino form. *Helcia sanguinolenta* and the rare *Zygopetalum Mackayi Charlesworthii* were also shown.

Messrs. Sander and Sons, St. Albans, secured a Silver Banksian Medal for a very

interesting exhibit of rare botanical Orchids, including *Lælia Lundii*, with its miniature flowers having the lip veined with purple-blue; *Pleurothallis cardiothallis*, with a singular red-brown flower in the centre of a large leaf; and various species and hybrids.

Messrs. J. Cypher and Sons, Cheltenham, were awarded a Silver Banksian Medal for a smart group of *Calanthe* hybrids, *Phalænopsis*, and many excellent *Cypripediums*.

Messrs. Jas. Veitch and Sons, Chelsea, obtained a Silver Banksian Medal for a good group of *Cypripediums*, *Cattleyas*, including the elegant *Trianæ Courtauldiana*, *Odontoglossum* hybrids, and several useful *Oncidium*s.

Messrs. Stuart Low and Co., Bush Hill Park, Enfield, received a Silver Banksian Medal for a very attractive group of *Cattleya Trianæ*, several varieties being of exceptionally good form. Well-flowered specimens of

Dendrobium Wardianum, and *Cymbidiums* were also shown.

Messrs. Hassall and Co., Southgate, secured a Bronze Banksian Medal for a very neat group of choice Orchids. Those of special merit included *Cattleya Empress Frederick*, *Lælio-Cattleya callistoglossa*, the elegant *Cypripedium Venus*, and *Miltonia Warscewiczii*.

Mr. W. A. Manda, St. Albans, was awarded a Silver Banksian Medal for a comprehensive exhibit of *Cattleyas*, the varieties of *Trianae* being numerous, one, named *American Beauty*, was singularly attractive.

Mr. E. V. Low, Haywards Heath, staged *Cattleya Trianae albo-violacea*, *Trianae coerulea*, with a slate-blue lip, and a good *Cypripedium* hybrid between *aureum virginalae* and *Venus* var. *George Singer*.

Lieut.-Col. Sir George Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), showed *Lælio-Cattleya Dorothy* (*Schröderae* × *L.-C. Doris*), with pinkish-buff flower having a crimson lip; *Cypripedium Constantine*, of unrecorded parentage, petals very broad; and two varieties of *Cymbidium Gottianum*, named *Dawn* and *The Pearl*, flowers creamy-white with slight pink tinge on apex of lip.

Sir Jeremiah Colman, Bart., Gatton Park, exhibited two well-grown specimens of *Odontoglossum Lady Roxburgh* (*cirrhosum* × *percultum*), the branching spikes having upwards of 70 flowers.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), staged *Odontoglossum Wiganianum* "Goodson's variety" (*Wilckeanum* × *Rolfeae*), bright yellow with dark brown markings; and *Odontioda Thwaitesii*, claret colour with rose lip.

C. J. Phillips, Esq., The Glebe, Sevenoaks, showed *Odontoglossum Antiope* var. *Reseda* (*Rossii rubescens* × *Edwardii*), a richly coloured flower of deep rose-purple with solid blotches on the inner parts of the segments, the crest and surrounding area yellow. Also *O. Phocis* (*Phoebe* × *Solon*), a pretty hybrid.

de Barri Crawshay, Esq., Rosefield, Sevenoaks, exhibited three new *Odontoglossum* hybrids. See "New Hybrids."

H. J. Bromilow, Esq., Rann Lea, Rainhill, Lancs., sent *Cypripedium Euryades* "New Hall Hey variety," and *C. Alcibiades illustris*, both excellent specimens.

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontoglossum ardentissimum Ebor, from Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill).—A very handsome form with a spike of 21 large flowers elegantly blotched with claret-purple.

Cymbidium Lady Colman var. *Golden Queen* (*eburneo-Lowianum* × *Tracyanum*), from Sir Jeremiah Colman, Bart., Gatton Park.—A very beautiful hybrid with large golden-yellow flowers having dotted lines of rose-purple. Lip yellowish-white with brown lines.

AWARDS OF MERIT.

Cymbidium glebelandense var. *J. Davis* (*Schröderi* × *insigne*), from J. Gurney Fowler, Esq., Glebelands, South Woodford.—An elegant hybrid with erect 13-flowered spike. Flowers pale buff with reddish lines. Lip with red spotting.

Odontoglossum amandum (*Pescatorei* × *Wilckeanum*), from C. J. Phillips, Esq., The Glebe, Sevenoaks.—A particularly distinct hybrid with chocolate blotches on a white ground. The lip well developed and with purple blotch.

Oncidioda Cooksoniae (*Oncidium macranthum* × *Cochlioda Nœzliana*), from Messrs. Charlesworth and Co.—An interesting cross in which the characters of both parents are plainly visible. Sepals dark red, petals lighter with yellow tips.

February 18th, 1913.

MEMBERS of the Orchid Committee present; J. Gurney Fowler, Esq. (in the chair), Mr. Jas. O'Brien (hon. sec.), and Sir Harry J. Veitch, Messrs. J. S. Moss, Gurney Wilson, R. A. Rolfe, Stuart Low, F. M. Ogilvie, F. J. Hanbury, T. Armstrong, C. H. Curtis, W. Cobb,

J. Charlesworth, J. Cypher, W. H. Hatcher, W. P. Bound, H. G. Alexander, J. E. Shill, W. H. White, S. Flory, W. Bolton, C. J. Lucas, R. Brooman-White, de B. Crawshay, and J. Wilson Potter.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Geo. Day), received a Silver Flora Medal for an excellent group of various Orchids including many *Odontiodas*, of which mention must be made of *Bradshawiæ* and *Thwaitesii*, the erect flowering *Phaius Norman* and *P. Marthæ*, *Odontoglossum Lambeauianum* and several good forms of *O. crispum*.

Messrs. Sander and Sons, St. Albans, received a Silver Flora Medal for an extensive group containing many excellent varieties of *Cattleya Trianæ*, ranging from pure white to very dark purple. *Lycaste Skinneri*, in fine variety, and a very bright golden-yellow form of *Lælio-Cattleya Trimyra* (*Trianæ* × *Myra*) were also shown.

Messrs. Charlesworth and Co., Haywards Heath, secured a Silver Flora Medal for a well arranged group of various hybrids and the following noteworthy plants: *Angræcum citratum*, *A. Leonis*, *Odontoglossum Anaphe* (*Uro-Skinneri* × *crispum*), a very darkly blotched form of *Miltonia Rœzlii*, and choice varieties of *Lælia anceps*.

Messrs. Stuart Low and Co., Bush Hill Park, were awarded a Silver Banksian Medal for an attractive group of *Dendrobium Wardianum*, many of the specimens being particularly well flowered, *Cattleya Trianæ*, *Odontoglossum Edwardii* hybrids in variety, the elegant *Cymbidium Wiganianum*, and the curious *Dendrobium Brymerianum*.

Messrs. Cypher and Sons, Cheltenham, secured a Silver Banksian Medal for a group of interesting Orchids, including *Zygopetalum crinitum*, the elegant *Angræcum eburneum*, *A. citratum*, *Phalænopsis Schilleriana*, and several good *Calanthes*.

Messrs. J. and A. McBean, Cooksbridge, were awarded a Silver Banksian Medal for a group of well grown Orchids. The *Cymbidiums*, which were of special merit, included *Lowianum* *concolor* × *eburneum*, of very beautiful creamy-green tint, the wax-

like *eburneum*, and various hybrids of *insigne*.

Mr. W. A. Manda, St. Albans, obtained a Silver Banksian Medal for a large group of *Cattleya Trianæ*, including various varieties of the feathered petal type. *Trianæ radiata* and *Mauve Gem* were both distinct and beautiful.

The Liverpool Orchid Co. were granted a Silver Banksian Medal for a nice group of *cinnabarina* hybrids, the various tints of orange being effective.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill), exhibited *Odontoglossum crispum* "The Dell Sunrise," a very peculiar form with a slight brownish-purple line on the extreme edge of the petals.

Lieut.-Col. Sir George Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), exhibited *Cattleya Trianæ* *Castor*, a good variety with the lip rich purple; *Lælio-Cattleya Valeria* (*luminosa* × *L.-C. Dora*), with terra cotta segments; *Cypripedium Prince Albert* (*Hera* × *Mrs. Mostyn*), an elegant flower; and *Cymbidium Gottianum*.

Mrs. Montagu, Lynford Hall, Mundford, Norfolk (gr. Mr. E. Hill), showed *Cypripedium* *Mrs. F. J. O. Montagu* (*aureum* *Surprise* × *Leeanum* *Clinkaberryanum*), a very distinct and elegant flower with amber-brown segments, the dorsal having a broad white band on the upper part. A narrow line of purple in the centre of the dorsal and petals, otherwise no spotting.

Edmund de Quincey, Esq., Oakwood, Chislehurst, staged a very pretty *Cypripedium* hybrid between *concolor* and *Godseffianum*, also a handsome *Dendrobium* (*nobile nobilius* × *Juno*).

H. T. Pitt, Esq., Stamford Hill, staged *Cypripedium* *Ophir* (*exul* × *Calypso*), and *Odontoglossum eximium* "Perdita," a handsomely blotched flower.

Miss E. Baker-Baker, Elemore Hall, Durham, showed *Bletia hyacinthina*, a light form with pinkish-white flowers.

Samuel Gratrix, Esq., Whalley Range, Manchester (gr. Mr. J. Brown), exhibited *Odontoglossum crispum* "Leonard Perfect," a very well cultivated plant carrying a spike

of 14 large flowers. This variety has previously received a F.C.C.

F. M. Ogilvie, Esq., The Shrubbery, Oxford, sent *Odontioda* Mrs. F. M. Ogilvie, one of the finest of the *Odontiodas*, large flowers elegantly blotched with scarlet; and *Odontoglossum crispum* "Lady Jane," a well-known form with marking on the petals similar to those on the lip.

AWARDS.

FIRST-CLASS CERTIFICATES.

Cattleya Trianae "The Baron," from Baron Bruno Schröder.—A very elegant and large flower with broad white sepals and petals, the lip slightly tinted. In every way a beautiful flower.

Brasso-Cattleya Menda (*C. labiata* × *B.-C. Digbyano* - *Mossiae* "Queen Alexandra"), from Pantia Ralli, Esq., Ashted Park, Surrey (gr. Mr. S. Farnes).—An extremely beautiful flower, of large size, thick substance and pure white, a bright purple blotch on centre of labellum.

Brasso-Cattleya Vilmoriniana Goodson's var. (*C. Mossiae* × *B.-C. Mrs. J. Leemann*), from H. S. Goodson, Esq., Putney.—A very bright and pretty hybrid. Flower large with deeply fringed labellum, throat orange colour, sepals and petals rosy-mauve.

Cymbidium Alexanderi (*eburneo-Lowianum* × *insigne*), from J. Gurney Fowler, Esq., Glebelands, South Woodford.—The finest of the *insigne* hybrids. Flowers deep rosy-pink, veined with rose-purple, lip broad and spotted with red.

Odontoglossum Amethyst Glebeland's var. (*Lambeauium* × *eximium*), flowers of perfect shape, with reddish-purple blotching on a rose ground.

AWARD OF MERIT.

Cattleya Leda (*Percivaliana* × *aurea*), from Lieut.-Col. Sir George Holford, Westonbirt.—Flowers of medium size, bright rose-purple, lip and throat veined with golden-orange.

MANCHESTER ORCHID SOCIETY

February 6th, 1913.

MEMBERS of the Committee present: Z. A. Ward, Esq. (in the chair), R. Ashworth, J. Bamber, J. Cypher, J. Evans, A. Hanmer, Dr. Hartley, A. J. Keeling, J. Lupton, W. J. Morgan, C. Parker, F. K. Sander, H. Thorp, A. Warburton, and H. Arthur (Secretary).

A Gold Medal was awarded to O. O. Wrigley, Esq., Bury, for a magnificent group of excellent Orchids.

Silver-gilt Medals were granted to Z. A. Ward, Esq., Northenden, for a good group of *Odontoglossums*; and to R. Ashworth, Esq., Newchurch, for a fine selection.

A Large Silver Medal was awarded to A. Warburton, Esq., Haslingden, for a good group; and Silver Medals to Col. J. Rutherford, M.P., Blackburn; S. Gratrix, Esq., Whalley Range; and Messrs. Cypher.

A Bronze Medal was granted to Rev. J. Crombleholme, Clayton-le-Moors. Other exhibitors included H. J. Bromilow, Esq., H. Arthur, Esq., Messrs. Sander and Sons, Messrs. Charlesworth and Co., Messrs. A. J. Keeling and Sons, Mr. J. Evans, and Mr. W. Shackleton.

AWARDS.

FIRST-CLASS CERTIFICATES.

Cypripedium King Ferdinand (*Hera Euryades* × *Mrs. Mostyn*), a fine, well-shaped flower, very bright, from S. Gratrix, Esq.

Odontoglossum Ceres var. *Rossendale* (*Rossii* × *Rolfeæ*), large flower, good colour, and well spotted, from R. Ashworth, Esq.

AWARDS OF MERIT.

Odontoglossum Harlequin and *Od. eximium* var. *Ellis Markindale*, from S. Gratrix, Esq.

Cypripedium Venus (*insigne* × *niveum*), from Rev. J. Crombleholme.

Odontoglossum Northern Star, from Z. A. Ward, Esq.

Odontioda Diana var. *Fire King*, from R. Ashworth, Esq.

Cymbidium Wiganianum (*Tracyanum* × *eburneum*), from H. Arthur, Esq.

BOTANICAL CERTIFICATE.

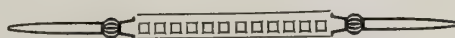
Bulbophyllum Dayanum, from Messrs. A. J. Keeling and Sons.

Vol. 3.

THE ORCHID WORLD.

No. 7.

APRIL, 1913.



NOTES.

ORCHID PRIZES.—In connection with the Bristol and District Gardeners' Mutual Improvement Society, the prizes offered by the President, Col. Cary Batten, J.P., for two *Cypripediums*, have been won by Messrs. Woodward, Jennings, and Parker.



ORCHID AWARDS.—The list of Orchid awards given by the Royal Horticultural Society from 1859 to 1909 has proved a useful work, and copies may still be had, price 5s. The commencement of the second volume, including all awards from the beginning of 1910 to the end of 1912, is now ready and may be obtained from the Society, price 2s. 6d.



KEW GARDENS.—Donations to the Gardens during 1912 include West Indian Orchids from Mr. A. W. Hill; and other Orchids from Mr. G. Hartmann, Niederhöchstadt; Mr. C. H. Lankester, Costa Rica; Mr. C. Roebelin, Bangkok; and Mr. F. S. Sillitoe, Khartoum. Dr. R. S. Rogers, Adelaide, sent Australian ground Orchids; and various specimens were given by Messrs. Sander and Sons. Among the specially noteworthy plants which flowered during the year were:—*Catasetum*, 20 species; *Cœlogyne*, 28 species; *Coryanthes macrantha*; and *Eulophiella Elizabethæ*.



KEW HERBARIUM.—During the year 1912 about 32,000 specimens were received as donations or exchanges, while about 5,000

were purchased. Sir Everard im Thurn, K.C.M.G., presented to the library a copy of Lindley's "Genera and Species of Orchidaceous Plants," once the property of C. L. Blume.



THE CERTIFICATE OF APPRECIATION.—Some doubt having been expressed regarding the correct use of this certificate of the Royal Horticultural Society, it is as well to point out that it is by no means supposed to be awarded to the plant itself, but to those whose work is attended with horticultural scientific interest, or is such as may reasonably be expected to assist in the improvement of a strain or in creating a new break. A hybridist might receive the award in recognition of his work in connecting two diverse genera, or by producing a superior strain of any particular hybrid. A cultivator might also gain the certificate by making known any special and very successful method of cultivation.



THE DAVIDSON ANNUAL CUP.—The Council of the Royal Horticultural Society have accepted the kind offer of an Annual Silver Cup from Mr. E. H. Davidson, of Borlases, Twyford. In 1913 it will be awarded in open competition at the Chelsea Show, May 20th—22nd, for the finest *Cattleya* species. The decision of the Council is final, and the cup may be withheld altogether at their discretion. The Council will not award

this high distinction unless satisfied and assured that the exhibit is, in the main, due to the work and capability of the exhibitor or his employees; on this point the Council may consult any expert not eligible to win the cup, and may reserve decision till the third day of the show.

§§ §

ORCHID SALE. — Duplicates from the Wilderspool collection formed by Mr. Wm. Bolton, of Warrington, were sold by Messrs. Protheroe and Morris on March 7th, 1913. The following figures are of interest: *Cypripedium Boltonii*, 2 growths, 15 gns.; *Cattleya gigas* Frau Melanie Beyrodt, 4 bulbs, 7 gns.; *Odontoglossum crispum*, fine shape, 8 gns.; *O. c. Lucianii*, 1 large bulb and new growth, 10 gns.; *O. c. The Nyzam*, 5 bulbs, 10 gns.; *Cattleya Hardyana alba*, 5 bulbs, 16 gns.; and *C. Souvenir de Queen Victoria*, 5 bulbs, 22 gns.

§§ §

PARTHENOGENESIS.—Mr. Wm. Bolton, of Warrington, kindly informs us of two other instances of supposed parthenogenesis. In the first case *Dendrobium Wardianum* was crossed with *Dendrobium atro-violaceum*, and all the seedlings which flowered proved to *D. Wardianum*. The second case was *Cymbidium insigne* crossed with *Odontoglossum amabile*, and although no seedlings have as yet flowered, there is not the slightest trace of the *Odontoglossum* parent in any of the plants.

§§ §

MILTONIA SPECTABILIS MORELIANA.—Since in many collections this magnificent Orchid does not thrive, nor flower satisfactorily, a few remarks upon a system of culture which seems to answer may be of interest to readers of the ORCHID WORLD. The coolest end of the *Cattleya* house must be utilised, and abundance of light and air are of the utmost importance, coupled with careful attention to watering, endeavouring to keep the compost in an even state of moisture throughout the growing season. Only give shade when the sun is sufficiently strong enough to scorch the leaves. Another point to which I attribute much of my success with this

Orchid is annual re-panning. This seems to give much encouragement to the young roots, and for compost a mixture of chopped osmunda fibre, oak leaves, and sphagnum moss has been found most beneficial. A proof of how well this system answers may be afforded when it may be remarked that one plant is now carrying a healthy seed pod, and the same bulb is throwing up two new leads as well. Three other plants are also carrying seed pods.—*C. Alwyn Harrison*.

§§ §

BRASSO-CATTELEYA MENDA.—The future work of the hybridist will be much occupied with albino varieties, and, so far, there is evidence that considerable success will be obtained. Messrs. Hassall and Co., Southgate, have produced a beautiful result by crossing *Cattleya labiata virginia*, an albino form of the species, with the white variety of *Brasso-Cattleya Digbyano-Mossiae* known as *Queen Alexandra*. The flowers are of splendid substance, pure white, the only exception being a purple blotch on the centre of the labellum. The shape varies, especially in the width of the petals. A very fine variety of this hybrid was figured on page 138 of our last issue, and it will be interesting to see if any coloured forms appear.

§§ §

DENDROBIUM SIBYL.—The history of this hybrid *Dendrobium* goes back to March 28th, 1893, when Mr. N. C. Cookson obtained an Award of Merit for a plant he exhibited at the Royal Horticultural Society. The parentage was given as *Linawianum* × *bigibbum*, although it was noticed at the time that little, if any, trace of the latter parent was visible. The following year, on March 13th, a First-class Certificate was awarded to Mr. Cookson for a plant of the same name and parentage, it being again remarked how much the pollen parent had been obliterated. About the year 1903, Mr. T. Armstrong, convinced that the stated parentage was incorrect, suggested that *crassinode* might have been used instead of *bigibbum*, and that it was his intention to raise a hybrid similar to *Sibyl* by crossing *crassinode* with *Linawianum*. Although several years elapsed before he could obtain both species in

flower at the same period, the cross was eventually made, and now several of the resulting seedlings have flowered, and prove to be identical with the original Sibyl exhibited by Mr. Cookson. It is worthy of note that Mr. Armstrong used the variety of crassinode known as Barberianum, which is a great improvement on the original form of the species, the stems being stouter and the plants of stronger growth.



SELF *versus* CROSS FERTILISATION.—

The *Gardeners' Chronicle*, in its issue of March 8th, contains an interesting letter from Prof. Henslow regarding the following sentence which occurred in an earlier number of the same publication: "We know from Darwin's experiments that continued self-fertilisation results in certain cases in a striking reduction in the number of seeds." "If," writes Prof. Henslow, in reply, "we substitute 'abundance' for reduction it would be equally true. Darwin's first conclusion was that 'Nature abhors self-fertilisation,' but he withdrew it after studying H. Müller's book on *The Fertilisation of Flowers*. Secondly, when I drew his attention to the fact that his experiments were already adapted for crossing, and neglected inconspicuous ones which are as habitually self-fertilised, he admitted the omission. Whatever evidence in Darwin's experiments appear to favour inter-crossing, they can be paralleled by others favouring self-fertilisation. The final result appears to be that in the wild state self-fertilising plants, though *small* and often annual, are far more prolific than those more or less dependent upon insects. All that Darwin's experiments proved was that special and careful crossing was a *temporary stimulating* process; but there was no proof that it would have been of any permanent value—that is, in a hereditary sense—to the plants and their progeny." Prof. Henslow also remarks that teachers in schools persist in telling the pupils that self-fertilisation is "injurious," and that the offspring will "die out," etc. A complete fallacy!



Liparis nana, a miniature Orchid.

LIPARIS NANA.—This interesting little plant, of which we give a life-size illustration, is a veritable miniature Orchid and one which may safely be included amongst the smallest members of the family. It was discovered growing on an imported plant of *Cymbidium insigne* in the establishment of Messrs. Hassall and Co., Southgate, who kindly sent it to us on account of its minuteness and singularity. The total height of the plant, including the inflorescence, is only one and half inches, and the pot is one of the smallest sizes used for cultivating these exotics. It is a native of Annam, terrestrial in habit, and has never been recorded until the technical description of it appeared in a recent number of the *Kew Bulletin*. Probably it could never have been imported alive by itself, its only chance of surviving the long journey being when under the care of the *Cymbidium insigne*, in whose mass of fibrous roots it remained undisturbed, and thus managed to exist until the favourable climate of an English Orchid house encouraged it to recommence growth and push forth the flower spike as seen in the illustration. It remains to state that the flowers are of a very dark purple colour and the formation of the labellum is characteristic of the genus.

GHENT EXHIBITION, 1913.—To the list on page 98 of English Orchidists who have been selected to act as members of the Jury, the names of Mr. J. S. Moss and Mr. R. A. Rolfe must be included.



ORCHID GROWING IN ITALY.—Mr. C. Alwyn Harrison has recently commenced the culture of Orchids on a commercial basis at Ventimiglia, Italy.



THEFT OF POLLEN.—No little excitement was evoked at the meeting of the Royal Horticultural Society, on March 18th, when it became known that soon after the committee had finished their work some miscreant had stolen the pollen from several valuable Orchids. The specimens attached were *Odontioda* flowers from the exhibit of Messrs. Armstrong and Brown, and *Brasso-Cattleya Cliftonii magnifica* exhibited by Mr. F. M. Ogilvie, and undoubtedly the finest *Brassavola* hybrid yet seen. In the latter case the pollen had been artfully removed by means of a piece of cotton wool, some of which was left adhering to the column. Mr. Ogilvie had already selected plants on which to place the pollen, and we feel sure that in his loss he will have the full sympathy of all brother Orchidists.



LIST OF ORCHID HYBRIDS. — Messrs. Sander and Sons, St. Albans, have issued a complete up-to-date list of Orchid hybrids, which contains the names and parentages of all known hybrids, whether introduced or artificially raised. The list is arranged in tabular, alphabetical form, so that all hybrids derived from each species or hybrid may be ascertained at a glance. This indispensable work, complete to the end of the year 1912, may be had from Messrs. Sander and Sons, St. Albans, price 12s. 6d.



ORCHID CATALOGUES.—Messrs. J. Cypher and Sons, Cheltenham, have again produced a useful Orchid list, well illustrated, and containing an extensive selection of the best species and hybrids. Messrs. A. J. Keeling

and Sons, Bradford, have issued a complete catalogue of the well-known Monton Grange collection, comprising some 3,000 plants. Messrs. J. and A. McBean, Cooksbridge, Sussex, have produced a singularly attractive catalogue of their large stock of choice and rare Orchids. No less than twelve excellent illustrations and a coloured plate are included.



CYPRIPEDIUMS FROM SOUTHPORT.—Our last issue contained an illustration of Mr. J. J. Holden's *Cypripedium* house, with its fine display of bloom. We have recently received from Mr. R. Johnson, who has charge of the plants, a varied selection of flowers, which not only show that the method of cultivation is immensely suitable, but that *Cypripediums* are of long lasting nature. The stems are very thick and the substance of the flowers leaves nothing to be desired. *Cypripedium Archie Neil* is particularly attractive, and is one of the late flowering varieties. It was produced by crossing *insigne* Harefield Hall with *Leeanum compactum*. *Cyp. Sunrise* is of equal merit; the lower part of the large dorsal sepal is incurved, which suggests that *Leeanum Clinkaberryanum* was one of the parents. The petals are well developed and show strong signs of *villosum*, both in shape and colour. *Cyp. Leeanum Lavertonianum* and *Cyp. Flamingo* are two meritorious hybrids worthy of inclusion in all collections.



THEN AND NOW. — When *Odontonia Cybele* (*O. cirrhosum* × *M. candida*) first opened its buds, some four weeks ago, hybridists were much interested in the future possibilities of combining the characters of *Miltonias* with those of *Odontoglossums*. No doubt many variations in form and colour could be produced, and a few useful additions made to our list of hybrids, which daily grows to never-ending length. But with all our energy and experience we do not often obtain the same amount of wonderment and esteem as was witnessed nearly a century ago when a new or rare species produced a much-cherished spike of bloom. Let us consider what Sir Joseph Paxton wrote in 1839

regarding *M. candida*, one of Cybele's parents. "Its fine and richly-mottled blossoms contain such a charming combination of lively colours, and these are rendered so pleasingly prominent by the delicate white of the labellum, that they at once arrest and fix the eye of the spectator, and occasion the most vivid emotions of delight." *M. candida* is with us to-day, but we regretfully acknowledge that it does not now produce the same emotions of delight, nor does its charming combination of lively colours appeal to us in the way that it did to Paxton. In those days of long ago our grandparents loved certain Orchids almost equally with their children; they made the acquaintance of the plant and admired its beauty in their early days of life, and that self-same Orchid passed through life almost hand-in-hand with its owner. Men of the present age have barely time to see but once the beauty of a newly-made hybrid. So quickly do these plants make their appearance, and so soon are they eclipsed by others, that, however bright their meteoric career may be, we know them only as a dream. A very few remain vivid in our memory, the majority pass to the region of the vast unknown.

NEW HYBRIDS.

crispum Lindleyanum

Coradinei
crispum
(spotted)

crispodinei

nobile crispum

armainvillierense
(Theodora)

DIDO

THE enormously bad influence of a grandparent is more shown in this hybrid than in most. The great power of Lindleyanum is too strong to be eliminated in three generations, even when allied to such fine varieties as nobile La Perfection and crispum augustum (these are the parents that M. Ch. Vuylsteke used for the production of armainvillierense Theodora).

It has left its marks very plainly in the characteristic hard linear form, absence of denticulation on the petals, incurved edges of sepals towards the tips, and straight parallel sided lip.

In one attribute only has it failed to make itself evident, that is, the yellow which has all disappeared, at least in this plant, but others may prove yellow, of course.

The ground of the flower is entirely white, the sepals having a large light reddish-brown blotch, as in Coradinei, and a smaller one towards their bases, the petals having a larger solid one with a couple of spots below.

The lip is that of an armainvillierense in the markings, but has the hard narrow form of a Coradinei, the edges only just serrated. The column clearly shows the form of that of Lindleyanum, with the cirrhi pointing forward as in it; the back is coloured.

Though valueless commercially, it does prove much to the investigator into the ways Nature took in making the hybrids we began with.

de B. Crawshaw, March 16th, 1913.

ODONTOGLOSSUM CLEOPATRA.—In the recording of this hybrid on page 140 a slight error occurred in the parentage. It should be Carmania (Lucasianum × Harryanum) × Vuylstekei.

ODONTOGLOSSUM ANTHOCRENE.—Messrs. Sander and Sons have produced this hybrid between elegans and Wilckeanum. The petals are twisted, and with the sepals have much of the Wilckeanum colour and marking. The large labellum has a prominent spiny crest.

ODONTOCIDIUM EDWARDATUM.—An interesting hybrid between Odontoglossum Edwardii and Oncidium serratum has been raised by Messrs. McBean, of Cooksbridge. The colour is reddish-brown, with bright golden-yellow tips to all the segments. The lip is narrow, with a prominent golden-yellow crest, the erect column tinged with blue. All the segments are undulated at their margins, thus giving the flower a pretty appearance. The ventral sepals are only half the width of the dorsal.

BRASSO-CATTLEYA FULGENS.—A charming flower has been raised by Messrs. Sander and Sons with the use of *C. Maggie Raphael* and *B. Digbyana*. The former parent is a hybrid between *Trianae* and *aurea*. The influence of the fringed lip of *Digbyana* and of the rich coloration of the *aurea* will be very apparent.

ODONTIODA RED RIDING HOOD.—A very pretty hybrid between *Od. Rossii majus* and *Odontioda Bradshawiae* has recently been flowered by Mr. F. M. Ogilvie, The Shrubbery, Oxford. As is often the case with *Rossii* hybrids this species has predominated, although the *Bradshawiae* is visible in the shape and coloration.



Odontonia Langowoyi.

ODONTONIA LANGOWOYI.—This new and interesting hybrid is the result of crossing *Odontoglossum Uro-Skinneri* with *Miltonia Schröderiana*. A reference to the illustration of this latter parent will show to what extent the very peculiar nature of the upright formed petals is transferred to the hybrid. While the two genera appear at first sight somewhat diverse, they are closely related geographically, both being Central American, the *Uro-Skinneri* coming from Guatemala and the *Schröderiana* from Costa Rica. The

sepals and petals of *Langowoyi* are fleshy, green at the back with occasional spotting of red-brown, the tips being yellow. The front of these segments is of shining crimson-brown, and when held up to the light the whole surface is marked with obscure blotching. The labellum has the basal part blotched with crimson-purple, and the broader apical half is white with a few crimson spots. The back of the lip has considerably more spotting, and, as may be seen in the illustration, this is only obscurely visible from the front side. The column is arched and rose coloured. *Odontonia Langowoyi* bears the name of its owner, Mr. A. Langowoy, a keen Russian amateur. *Miltonioda Ajax* (*Cochlioda Noëzliana* × *Miltonia Schröderiana*) is another interesting hybrid which has the petals formed in the same upright manner.

BRASSOCATTLÆLIA FIGARO.—A useful addition to the yellow-flowering section has been raised in the Westonbirt collection by Mr. H. G. Alexander, who has crossed *Brasso-Lælia Jessopi* (*xanthina* × *Digbyana*) with *Brasso-Cattleya Mrs. J. Leemann* (*aurea* × *Digbyana*). The first plant to bloom has rather starry flowers, but of thick substance, as usually seen in *Jessopi*. The yellow colour is equally suffused over the whole surface.

ODONTOGLOSSUM JAMES O'BRIEN.—A very unusual cross has been raised and flowered by Mr. Eric Davidson, Twyford, Berks. The parents are *Duvivierianum* and *harvengtense*; both are natural hybrids, the former between *nebulosum* and *maculatum*, the latter between *crispum* and *triumphans*. The ground colour is golden-yellow, evenly blotched with chocolate-brown. The large lip has the immense blotch so characteristic of *triumphans*. The influence of *maculatum* is to be seen in the shape and keeling on the back of the sepals.

LÆLIO-CATTLEYA VALERIA.—A rather unusual colour has been produced in this hybrid by crossing *L.-C. luminosa* with *L.-C. Dora* (*Schröderæ* × *Hippolyta*). The terracotta segments have a pleasing soft red tint suffused over their whole surface. The *Schröderæ* parent appears to have a softening

influence over the other colours. Raised by Mr. H. G. Alexander in the Westonbirt collection.

LÆLIO-CATTLEYA BARBARA.—*Cattleya Gaskelliana* and *Lælia Iona* (*tenebrosa* × *Dayana*) are the parents of a useful flower raised by Mr. Eustace F. Clarke, Evershot, Dorset. The broad petals are light mauve, the lip rich purple extending to the side lobes and up the throat. The centre of the labellum is yellow, and all the plants flower on the new undeveloped growth, without a sheath, as in the *Dayana* species.

ODONTOGLOSSUM SATURNE.—So far, *nebulosum* has produced but few hybrids, the chief reason being the great difficulty experienced in making it carry a seed pod. Mons. Henri Graire, Amiens, France, appears somewhat successful, for he has recently flowered another interesting hybrid created by the use of *nebulosum*. The first was *Odontoglossum Neptune* (*crispum* × *nebulosum*), flowered September, 1912, and the second is *Odontoglossum Saturne* (*nebulosum* × *crispo-Harryanum*), exhibited March, 1913. This latter hybrid has a light rose ground colour evenly spotted with brownish-red; the lip is broad, somewhat pointed at the apex, prettily spotted, the crest being yellow with minute spotting. The plant has much of the *nebulosum* habit.

ODONTOGLOSSUM LAWRECRISPUM.—An elegant hybrid between *Lawrenceanum* (*Rolfeæ* × *triumphans*) and *crispum* has recently flowered with Messrs. J. and A. McBean, Cooksbridge. The shape is very good, petals almost round and overlapping the sepals, creamy-white ground colour with large chocolate-brown blotches; lip very broad.

ODONTIODA KITTY.—A particularly pretty hybrid between *Odontioda wickhamensis* (*crispum* × *sanguinea*) and *ardentissimum* has been raised by Mr. George W. Bird, of Manor House, West Wickham, Kent. The whole flower is suffused with rose-purple, over which lies a brownish-red colour. The labellum is comparatively large, of a much lighter rose than the other segments, and with a central blotch of crimson-red. This flower is rendered attractive by the very pretty style in which

the ends of the undulating sepals and petals are twisted and recurved. The plant has produced a spike of six flowers on its second seedling bulb, and gives promise of considerable improvement.

ODONTIODA MOSSIÆ.—An interesting hybrid between *Cochlioda Noëziana* and *Odontoglossum maculatum* has been raised by Mr. J. S. Moss, Wintershill House, Bishop's Waltham. In size the flower is intermediate between the parents, the lip is deeply three-lobed, and the colour uniform red. The *maculatum* has not had the strong influence that one might expect from this distinct *Odontoglossum*



Odontonia Cybele.

ODONTONIA CYBELE.—Not many hybridists would think of crossing *Odontoglossum cirrhosum* with *Miltonia candida*, yet these are the parents of *Cybele*, recently flowered by Messrs. Charlesworth and Co., who were awarded a Certificate of Appreciation for their result. The sepals and petals are heavily blotched with reddish-brown on a yellow ground. The labellum almost flat, having entirely lost the convolute form of the *Miltonia*, light yellow in colour and spotted with red-brown; the apex is pointed, the sides slightly undulated and toothed at the margin. The hybrid appears to be of very delicate constitution.



Some of Mons. Firmin Lambeau's Orchid houses at Villa Vogelsang, Brussels. The method of shading and gearing for manipulating the blinds is worthy of notice.

SHADING.

THE shading of Orchids requires considerable care and attention, more especially during the early part of the summer, for it is then that the young growths are particularly sensitive to any excess of light, and when once they have become burnt and hardened further progress is rendered very slow.

Many growers aim at producing a soft and vigorous growth during the early part of the season by heavily shading the houses. Plants so treated invariably make rapid headway and grow at a much quicker rate than those given greater light, but at the end of summer more light must be allowed, for unless the plants are sufficiently ripened they will not be able to withstand a long period of wintery weather.

Although permanent shading has given excellent results in the hands of experienced trade growers, its use is not recommended to amateurs. By far the best method is to have shading that can be easily manipulated. Lath roller-blinds are excellent in this respect, for apart from their use as a means of producing shade they are very handy at night-time to keep off cold winds and severe frosts.

Our illustration shows some of Mons. Firmin Lambeau's Orchid houses fitted with

lath roller-blinds. The method of rolling them up and down by means of gearing is very ingenious, and considerably better than by the use of cords, which frequently become unworkable when sharp frosts prevail.

Another method often adopted is to place the blinds on the house in such a way that the laths are parallel with the sash bars. When so arranged no gearing or cords are necessary, and the rolling up can be accomplished when passing along the side of the house. Whichever method is adopted, an important point is that the blinds must be raised about nine inches from the glass by means of suitable iron or wood devices. This will allow a free circulation of air over the glass, and will also give room for the top ventilators to be opened when required.

In the South of England, and other places where the sun is particularly powerful during the summer months, it is a good plan, in addition to the use of blinds, to shade the house by giving the glass a thin coating of white-wash. By so doing there is always some slight protection to the plants, should by any means the unrolling of the blinds be forgotten or the house left without an attendant. If the plants are left unshaded for only a few minutes, considerable damage may be done by the sunshine falling direct upon the leaves.

MILTONIA SCHRÖDERIANA.

THIS distinct and very rare *Miltonia* first appeared in the garden of Baron Schröder, The Dell, Windsor, in the spring of 1882. The *Gardeners' Chronicle* remarked at the time: "What is it? Nothing like it has appeared before in Europe. The columnar wings and the nature of callus forbid to think it a white-mauve *Odontoglossum tripudians*. It may be a cross between this and *O. Pescatorei*, perhaps *Veitchianum*." The same publication, in its issue of September 24th, 1887, contains the following remark by Reichenbach: "This is an unusually stately plant. The first inflorescence had only three flowers, but there can be no doubt that, after further establishment, it will produce larger spikes. The sepals are strongly keeled. Both sepals and petals are of the most shining and pure cinnamon, with some yellowish-white markings and transverse bars and tips. The lip with its high convex antebasilar part is white at the base, and at the interior part it is white too. The mid part is of the purest purple, which looks quite admirable. The column is novel by its very developed tabula infrastigmatica, yellow in front, bidentate under the fovea. Limbs of fovea and very narrow wings purple." The species is a native of Central America, and in its early days was known as an *Odontoglossum*.

*Miltonia Schröderiana.*

NEW ORCHIDS.

The *Kew Bulletin* contains the 39th Decade of New Orchids. The following species, with Latin descriptions by Mr. R. A. Rolfe, are mentioned:—

Liparis nana, from Annam. A very small plant, with dark purple flowers, and somewhat anomalous in its very broad nearly straight column. Its precise affinity remains at present uncertain. Discovered on a plant of *Cymbidium insigne*.

Cirrhopetalum miniatum, from Annam. A remarkable species which flowered in the Royal Botanic Gardens, Glasnevin, in September, 1910. Sir Fred. W. Moore states that it was purchased from Messrs. Sander and Sons as having been imported with

GHENT EXHIBITION.—The 17th International Horticultural Exhibition will be held at Ghent, April 26th to May 4th, 1913. The members of the Jury will commence their work on Friday, April 25th, at 8.30 in the morning, and will assemble in the Palais des Floralies.

Dendrobium Bronckartii. The flowers are vermilion-coloured, with bright yellow hairs on the margins of the petals and dorsal sepal, the anther-case yellow, and the teeth of the column whitish.

Calanthe violacea, from Madagascar. Imported by Messrs. Charlesworth and Co., Haywards Heath, and flowered in their establishment, January, 1912. The sepals and petals are light purple, and the lip violet-purple, becoming brownish as it fades, while the crest of the lip is yellowish-brown.

Epidendrum (Nanodes) congestum, from Costa Rica. Flowered in the Royal Botanic Gardens, Glasnevin, in January, 1911. The flowers are pale green, with an emerald-green lip, and the column suffused and mottled with red-purple.

Eulophia Macowani, from S. Africa. Kasonga River and Kowie River mouth.

Eulophia acuminata, from S. Africa. Natal: near Estcourt.

Eulophia Bakeri, from S. Africa. Transvaal: high ridge outside Johannesburg.

Eulophia Rehmanni, from S. Africa. Transvaal: Houtbosch.

Eulophia latipetala, from S. Africa. Transvaal: Houtbosch, Pietersburg district.

Eulophia Allisoni, from S. Africa. Without precise locality.

CATTLEYA BOWRINGIANA.

THIS Central American species is now so well known that any description of its botanical details would be uninteresting. When compared with other *Cattleya* species it is of recent discovery, a period of less than thirty years covering its whole history.

In its native home it delights in growing on bare rocks, fully exposed to the sun during the day, but at night amply watered by the heavy dews. During the growing season heavy rains and the vapour arising from the many streams running between the rocks supply the plants with considerable

moisture, from which they greatly benefit. This humid atmosphere imparts a very succulent nature to the young growths, which are eagerly devoured by the wild animals of the district; many of the plants are thus broken down and rendered worthless for gathering by collectors.

Our illustration shows a grand specimen with 180 blooms and 22 newly made bulbs flowering in the collection of the Rt. Hon. Joseph Chamberlain, Highbury, Birmingham, during the late autumn of 1912. The immense amount of flower and the free-growing nature of the plant clearly proves the value of this species to all collections. Not only is this true from a decorative point of view, but also from that of the hybridist, who during recent years has produced many beautiful hybrids by the use of this species, both as a seed-bearing and pollen parent.

The early hybrids from this species include *Cattleya Portia* (*Bowringiana* × *labiata*), *C. Mantinii* (*B.* × *aurea*), *C. Mrs. J. W. Whiteley* (*B.* × *Hardyana*), and *C. Ariel* (*B.* × *Gaskelliana*), besides a host of others, all interesting, but many having very little distinction of specific character to recommend them for further hybridisation.

As may be expected, any hybrid containing the elegant and distinct *Cattleya aurea* in its parentage is sure to be used with good results. The golden-yellow colour of this species invariably brightens up the purple pigment of others, a notable example being *Cattleya Mantinii*, in which the rosy purple tint of *Bowringiana* is considerably improved by the addition of the *aurea* colour. Hybridists have already taken advantage of this reality by using *C. Mantinii* to a large extent. Evidence of this may be seen in *Cattleya Freya* (*Mantinii* × *aurea*), *C. Oriel* (*M.* × *Hardyana*), *C. Mad. Charlier* (*M.* × *labiata*), and in *Lælio-Cattleya Messena* (*M.* × *L.-C. Cappei*), *L.-C. Milly* (*M.* × *L.-C. bletchleyensis*), *L.-C. Nemea* (*M.* × *L.-C. Haroldiana*), *L.-C. Pero* (*M.* × *Gottoiana*), *L.-C. Miss Locke* (*M.* × *L.-C. Isis*), *L.-C. Miss Gilberta Blount* (*M.* × *L.-C. Ingramii*), and *L.-C. Mantinensis* (*M.* × *L.-C. Behrensiana*).



Cattleya Bowringiana, a specimen with 22 leads and 180 flowers in the collection of the Right Hon. Joseph Chamberlain, Highbury, Birmingham.



Lælio-Cattleya McBeaniana. L. anceps Schröderiana × *C. Schröderæ*.

Received F.C.C., R.H.S., April 2nd, 1912, when exhibited by the raisers, Messrs. J. & A. McBean, Cooksbridge, Sussex.

THE *Wilderspool Collection.*

WARRINGTON,
LANCASHIRE.

ABOUT midway between Manchester and Liverpool is the large town of Warrington, through which now runs the Manchester Ship Canal. Alongside this celebrated waterway, and at a place where an old Roman road has been discovered, may be found the residence and Orchid houses of Wm. Bolton, Esq., who for the long period of 30 years has been a member of the Town Council, an Alderman since 1894, and Mayor for three successive years, 1903-6.

Mr. Bolton's connection with Orchids dates from 1869, when he received from his uncle, Mr. Samuel Barlow, of Stakehill, Middleton, several young plants from the tops of *Dendrobium nobile*, and a few pieces of *Cypripedium insigne*. In 1872 he sold the greenhouses and plants, and departed for America. Returning, some two years later, he took an interest in florist's flowers, won the Turner Memorial Prize for seedling auriculas

at the Royal Horticultural Society, April, 1887, and at the same show received a First-class Certificate for auricula Samuel Barlow.

Mr. Samuel Barlow's collection of Orchids always attracted Mr. Bolton's attention, and induced him, in 1883, to recommence their culture. This new collection, however, did not exist for long. One cold night the heating apparatus failed, and all the plants, with the exception of a few *Odontoglossum* Rossii, were frozen to death. Mr. Arthur Potts, of Chester, after whom a variety of *Catasetum* *Bungerothii* is named, sent a large number of *Odontoglossums*



Alderman Wm. Bolton.

to Mr. Bolton, but this time, owing to the high temperature of the houses, failure again resulted.

At the dispersal of the Ainsworth collection Mr. Bolton acquired the majority of the *Vandas* and *Aerides*, but these being found difficult to grow, were soon after presented to

the Rev. F. D. Horner, a well-known auricula specialist. Mr. Bolton's interest in Orchids was by no means weakened in consequence of these early failures; in fact, it became gradually stronger, and about the year 1893 he dispatched Mr. Kromer to Brazil in search of *Cattleya labiata* and *Oncidiums*, and Mr. Jensen to Colombia for various species only to be found in that country. Ever since then the collection has steadily increased, and has been carried on practically as that of an amateur's, although various sales have been held for the disposal of surplus stock which accumulates largely owing to good cultivation.



Odontioda Boltonii.

No less than 32 greenhouses of various sizes and forms have been constructed, the principal ones being about 60 feet long and arranged on either side of extensive corridors. Every house is well supplied with rain-water tanks, and on a level with the staging smaller tanks are provided in order that the water may be kept at the same temperature as the plants, and to facilitate the dipping of the numerous plants which are grown in pans suspended from the roof. Lath roller blinds are chiefly used for shading.

The heating apparatus needed for this extensive range of glass is naturally on a large scale, and is interesting for the reason that it greatly differs from that usually employed. Several large steam boilers, of the horizontal type used for factories, have been erected, not in the usual manner, but upside down, and this for the following reason: the internal fire-box and flue of this type of boiler does not run through the exact centre, but is placed near the lower portion in order that there may be ample room for the storage of the steam. But when these boilers are used for heating greenhouses, and, therefore, are entirely full of water, it was found that the large amount of water over the fire-box and flue took too long to heat, so the boilers were simply turned over, the fire bars reversed, and the main hot-water supply fixed to what was formerly the base of the boiler, the heated water then quickly found its way into the houses. It is interesting to note that one of these boilers has now completed 46 years of work, the first 35 of which were spent for the production of steam, and the last 11 years as a greenhouse heater.

Many of the hot-water pipes are six and eight inches in diameter, and were those originally used by the engineers in constructing the Manchester Ship Canal. Of course, one of these large pipes on each side of the *Odontoglossum* houses is quite sufficient.

In a large conservatory adjoining the residence several plants of *Cymbidium insigne* and *eburneum* are planted in the rock-work, where they grow satisfactorily. A spacious seedling house contains a vast number of young *Cypripediums*, and various plants with seed pods, including *Govenia Gardneri*, *Zygopetalum Wendlandii*, and a species of *Spathoglottis*, all of which have been crossed with *Cymbidium insigne*.

The *Miltonia* house is gay with *vexillaria* and *Bleuana*, all in perfect health, and without a spot on the foliage. This house is kept at a regular temperature of 58-65 degrees, and the staging is covered with ashes kept constantly moist. There is no doubt that the cause of spotted leaves is not an excess of moisture,



Cypripedium insigne Sanderae flowering in the collection of Wm. Bolton, Esq.,
Wilderspool, Warrington, Lancs.

but a too rapid change of temperature, or draught from ventilators and open doors.

Cypripedium insigne Sanderæ is a special favourite at Wilderspool, and our illustration shows some of the plants in flower. Many of the specimens consist of about twenty growths, with leaves eighteen inches in length, and occupying ten- and twelve-inch pots. The stock

of the flower. Large quantities of *Maudia* and *callosum* Sanderæ are also cultivated.

Cattleyas are cultivated in tens of thousands, and, at the present time, there are about 3,500 plants of *C. Mossiæ* in sheath. *C. labiata*, *C. Mendelii* and *C. Schröderæ* are all grown in equally large batches. The neat way in which all the bulbs are tied to a



Cypripedium Boltonii.

F.C.C. Royal Horticultural Society, Nov. 23rd, 1909.

F.C.C. and Silver Medal, Manchester Orchid Society, Dec. 2nd, 1909.

of this beautiful albino is one of the largest in cultivation. Other high-class *Cypripediums* include *Dreadnought*, *Sultan*, and *Beryl* "West Point variety." *Cyp. Charlesworthii* is represented by a large number of strong plants. *Cyp. Boltonii* is one of the finest and most beautiful hybrids yet produced. Its strong constitution enables rapid growth to be made, and small plants quickly become good specimens. The illustration gives a realistic idea

central stick gives the houses a very smart appearance. With such a large stock it is not surprising to find several albino varieties and other rare forms. The Wilderspool variety of *C. gigas* may be described as a semi-albino, the lip being of a delicate slate-blue colour.

A strange event happened in connection with an importation of *Cattleya Bowringiana*. The ignorant collector, before packing the plants, cut off the bulbs as well as the leaves

and roots, so that when the box arrived in this country and was opened by Mr. Bolton, it contained only a quantity of rhizomes with numerous *Pleione* resembling corms attached. These plants were a great puzzle for some time, and more so when the new growths commenced to grow, for they gave one the impression that a *Pleione* was turning into a *Cattleya*. *C. Bowringiana* differs from most species of the genus by having a thick base to its bulb, and it is largely owing to this that nearly every plant in the importation eventually succeeded in establishing itself.

Cymbidiums are another feature, the batch of *C. eburneum* carrying about 60 flowers. *C. insigne* is grown in large quantities, and a remarkable fact is that all the imported bulbs have been burnt by fire, yet not sufficiently to prevent them growing. Mr. Bolton believes that the collectors purposely set fire to the jungle grass in order to kill the poisonous snakes and to facilitate the gathering of the plants.

Dendrobiums include *Bancroftianum*, one of the prettiest species for decorative work, and *Ashworthiæ*, a very rare species allied to *macrophyllum*. The stock of *D. Brymerianum* is kept up by cultivating the young growths formed on the tops of the old bulbs.

A large lean-to house contains a quantity of *Lycaste Skinneri*, nearly all of which are in flower. *Miltonia spectabilis*, *Epidendrums*, and various scarce species are in the best of health. Whichever house is entered there is the same multitude of plants to be seen, species and hybrids of every description.

Mr. Bolton's immense collection of Orchids is not the only surprise awaiting the visitor to Wilderspool. The superb assemblage of oil paintings, an extensive collection of war medals, gold and silver coins, commemoration medals, numerous specimens of the metal-worker's gold and silver handicraft, and a vast collection of rare curios from all parts of the world, never fail to interest both the owner and admiring visitor.

The cultivation of Orchids at Wilderspool differs from that usually adopted. No peat has been on the premises since 1897. The plants were then grown in sphagnum moss

alone, but this was not very successful. About 1902 the addition of leaves was thought of, and after various enquiries from the collectors as to the class of trees that Orchids were found growing upon, it was decided to use those from oak trees, as this kind was most likely to provide the necessary food for the plants. Experiments proved that a mixture of two-thirds moss and one-third leaves with some rough sand made a suitable compost. The only variation is with *Cypripediums*, and for these a quantity of red marl is included in the compost. This keeps the mixture open and sweet, and provides a certain amount of mineral matter, which the plants appear to like.

The whole of the cultural treatment is managed by Mr. Cain, who has been at Wilderspool for the long period of 21 years. Previous to this he was with Messrs. Charlesworth and Mr. E. G. Wrigley, the latter collection having been dispersed some 23 years ago. With an able staff of assistants Mr. Cain keeps the whole of this immense stock, roughly estimated at 100,000 plants, in perfect order, and when the chemical atmosphere of the neighbourhood is considered, his work is so much the more praiseworthy. During the quarter of a century that Mr. Cain has been connected with Orchid growing he has seen many changes, but firmly believes that good species are still as valuable and make as much money as they did when he first commenced to take an interest in the plants.

NORTH OF ENGLAND HORTICULTURAL SOCIETY.—The following members have been elected to form the Orchid Committee:—A. R. Crossley (chairman), W. H. Hatcher (vice-chairman), F. W. Corney (secretary), A. J. Keeling, W. Shackleton, A. G. Ellwood, F. C. Puddle, J. Cypher, J. Cowan, J. T. Barker, G. Taylor, A. J. Hall, E. Rogers, J. Hartley, A. Harrison, F. Sander, J. Lupton, and W. Townsend.

The Spring Show of the Society was held on March 12th and 13th, in the Central Baths,

Bradford. The following awards were made by the Orchid Committee:—

Second-class Diplomas to *Dendrobium Austinii* Thwaites' var., *Lycaste Skinneri* The Knowle var., both from J. Hartley, Esq.; and *Odontoglossum Rolfeæ violacea*, from Messrs. Mansell and Hatcher.

The following medals were awarded for groups of Orchids:—Silver Medals to Messrs.

J. Hartley, The Knowle, Bradford; F. A. Hindley, Great Horton; and Mansell and Hatcher, Rawdon, Leeds. Bronze Medal to Messrs. A. J. Keeling and Sons, Bradford. Mr. J. Scott, Newlay, Horsforth, Leeds, exhibited *Dendrobium Jamesianum*.

The Society's Magazine for March contains an article, "Orchids as a Hobby," by Mr. J. T. Barker, of Hessle, Hull.

ORCHIDS FOR AMATEURS.

CYPRIPEDIUMS are the easiest of all Orchids to cultivate, and on that account may well be recommended to the amateur. Large cities and manufacturing towns are noted for their autumn fogs and winter dulness, conditions which are by no means beneficial to any Orchid. The wonder is that any form of vegetation is able to exist, yet, in close proximity to these comparatively unhealthy spots, *Cypripediums* flourish and produce an excellent display of bloom during the dullest of the winter months.

The writer has seen many excellent specimens potted in ordinary soil and growing luxuriantly in a cool greenhouse, such as is often used for the protection of bedding plants. In their native country they are frequently discovered in dense forests, where they are happy and find a comfortable home in the rich vegetable matter to be found at the foot of the trees. Their condition of growth is thus entirely terrestrial, and the soil and atmosphere being continually moist they have no need for pseudo-bulbs, which, in the case of epiphytic and other Orchids, assist them through a period of drought by storing up water and nutriment until the rainy season again returns. It will thus be seen what suitable plants *Cypripediums* are for cultivation in vineries and various shady and moist greenhouses.

Some amateurs have expressed an opinion that large bulbed Orchids are unsightly during the time they are not in flower; but, be this as it may, no one can make a similar remark

concerning the *Cypripedium*, its neat, often-times handsomely mottled leaves at all times being ornamental to any plant house.

Although *Cypripediums* flourish well in ordinary soil, there is no doubt that the finest results are achieved by using good fibrous loam and osmunda or peat, with the addition of a little sphagnum moss and coarse silver sand. This compost should be carefully worked in among the roots and the whole pressed moderately firm, always leaving a space of about half an inch at the top for the purpose of receiving a good share of water when this operation is carried out.

Repotting is best done when the new growths are about an inch in height, for it is then that the new roots commence to grow and enter the fresh compost. Propagation may easily be done at the same time by merely dividing a specimen into pieces consisting of two or more growths, or, in the case of a rare variety, every single growth that has roots may be placed in a separate pot. Newly potted plants should be carefully attended to until they again become established. The leaves should be kept moist, and no direct sunshine should reach them until the roots have obtained a good hold of the new compost.

Cypripediums, although liking a good light during the winter months, require fairly heavy shading during the summer time, and an abundance of atmospheric moisture at all times. The following are easily grown cool-house species: *insigne*, *villosum*, and *Spicerianum*, while their various hybrids are equally suitable. If a minimum temperature

of 50-60 degrees can be maintained on cold nights, and a few extra degrees during the daytime, then the field of selection is greatly widened, and a really grand display of bloom can be secured with but little trouble and expenditure. Without any exaggeration, many thousands of different varieties of *Cypripediums* may now be obtained, so there is a vast selection waiting for the amateur who intends taking up their cultivation.

ORCHIDS.

(See Coloured Plate.)

AMATEURS are but just beginning to realise that Orchids, like other plants, are capable of being understood by anyone who really desires to understand them; and, when once understood, the cool species, at any rate, are not less tractable than common greenhouse plants. It is for the encouragement and assistance to amateurs that Mr. James O'Brien has written "Orchids," a handy little volume, and one of the "Present-Day Gardening" series edited by Mr. R. Hooper Pearson.

The Rise and Progress of Orchid Culture is an interesting subject dealt with in the first chapter, the author stating that the earliest tropical Orchid to flower in the British Isles appears to have been *Bletia verecunda*, which bloomed in 1732 on a plant received by Peter Collinson from the Bahamas in the previous year. At the end of the eighteenth century about fifty exotic species were recorded. At that time most of the Orchids were imported only to perish as a consequence of the unsuitable conditions in which they were grown, but no such tragedies need happen again, for Mr. O'Brien fully explains all the essentials to good culture in the twenty-one chapters contained in this excellent work.

Following a short account of the structure of Orchid flowers, a subject formerly only of interest to the botanist, but now of value to all growers who in these up-to-date times are hybridists of no small experience, Mr. O'Brien deals with the structure of the Orchid house,

a most important matter. So far as the improvements in present-day Orchid houses are concerned, these are not due to the imagination of the horticultural builder, but to the experience of the Orchid grower. It is owing to him that the old-time glass sides, with their hinged ventilators on a level with the plants, have been abandoned. Ventilation, staging, paths, and tanks, etc., all have their share of attention, and the method of potting and basketing is equally taken in hand.

We quite agree with the author's views regarding manure. It should be distinctly understood that, in the case of true epiphytes, there is no need for manures, and that artificial chemical manures are almost certain to bring about disastrous results, the final collapse being in proportion to the potency of the stimulant used and the recklessness of the grower. Although diseases are not of such frequent occurrence as in former days, this book contains useful hints and remedies for the principal complaints to which Orchids, in company with other plants, are subject.

Mr. O'Brien gives much useful information concerning the importing and subsequent treatment of plants, both terrestrial and epiphytal. Those amateurs who desire to distinguish themselves by producing hybrids will find many useful notes on the means of sowing and raising the seed; while the treatment best suited to the seedling's healthy existence has not escaped attention.

Orchids for the conservatory are not forgotten, and the list given shows that quite a representative collection may be grown in a house not specially built for their cultivation. Quite a new interest would open up to the owners of such places were they to turn their attention to acquiring from time to time a few of the Orchids which are now to be procured as cheaply as the less suitable plants, such as *Pelargoniums*. *Stanhopeas* are among the kinds recommended for this purpose, and we feel sure any amateur flowering these plants for the first time will be more than delighted with his success.

An enumeration of the principal genera and species in cultivation occupies some 23 pages. From this the amateur will easily select plants

suitable to the atmosphere of his greenhouse. Hybrid Orchids is the title of the last chapter in this useful little book, which is rendered exceedingly attractive by the inclusion of eight plates reproduced from actual specimens in their natural colours. These are: *Miltonia vexillaria* with 126 flowers; *Dendrobium Wardianum*, bearing 264 flowers; *Cattleya Trianae*, with 88 blossoms; *Brasso-Cattleya Digbyano-Mossiae*, Westonbirt variety; *Cymbidium Lowio-eburneum*, a fine specimen; *Oncidium Marshallianum*; *Odontoglossum crispum*; and *Cypripedium insigne Sanderæ*. The latter is reproduced in the present issue by kind permission of the publishers, Messrs. T. C. and E. C. Jack. Copies may be obtained from the office of the ORCHID WORLD, price 1s. 10d., post free; abroad 1s. 11d., post free.

CYPRIPEDIUM INSIGNE SANDERÆ.

(See Coloured Plate.)

SOME twenty-five years ago, after a journey to the United States of America, Mr. F. Sander, accompanied by a party of Orchid lovers, including the late Major Mason, was walking through the Orchid houses in his old establishment in George Street, St. Albans, when he observed among a large batch of imported plants of the montanum variety of *Cypripedium insigne* that were in bud and flower for the first time, one plant, then in bud, which had a yellowish-green flower stem. He at once exclaimed: "There is a white *insigne*!" The plant was carefully set on one side and watched. As one can well understand, the fact of this plant having a light green stem, whereas all the *insignes* have a dark chocolate-brown one, was of intense interest. When the flower expanded, it was found to be even more distinct and beautiful than the most sanguine expectations, for it was the variety since known as *Sanderæ*.

At that time there was no yellow form known, and, of course, there were scarcely any hybrids, and none that could compare in any way with this new variety. The plant

was divided, and the piece in bloom was sold by auction at Messrs. Protheroe and Morris' sale-rooms. The late Baron Schröder was the buyer, the price being 72 guineas. This plant made a prodigious sensation. The second half of the plant was sold to Mr. R. H. Measures for 100 guineas.

The following year Mr. Sander received from his collector a plant which the natives assured him was a yellow *insigne*. This plant was acquired by the late Baron Schröder and named *insigne Sanderiana*. It remained for many years in the Baron's collection, and hence it was, even after he parted with a piece, always rarer than the *Sanderæ* variety.

The plant purchased by the late Mr. Measures grew well, and the owner soon had several divisions. Mr. Sander bought back a small plant for 250 guineas; but Mr. Measures refused, about the same time, an offer of 1,000 guineas for his stock of the plant. It is difficult to realise nowadays how very exceptional and valuable this variety was in those years, and how the annual flowering of the plants was keenly looked forward to.

There is no other *Cypripedium* of which such large numbers have been propagated in the course of years, and it would be impossible to estimate with any accuracy the number of plants now in existence; but they number many thousands, and are now grown for cut-flower work, and in the near future will be so on a much larger scale, as the flower is so beautiful, and a very much higher price can be obtained than for the ordinary kinds. Since *Sanderæ* first bloomed, there have turned up a few other forms, but none can equal it for general excellence.

Insigne Sanderæ, like the ordinary forms of this species, will flourish and produce an abundance of bloom with ordinary care in any greenhouse or conservatory, and when grown to perfection and in large specimen plants, as we have had the pleasure of seeing it in the houses of Lieut.-Col. Sir George Holford, K.C.V.O., in his wonderful collection at Westonbirt, there are few Orchids which can excel it for beauty. Our illustration is of one of the many specimens cultivated by Mr. H. G. Alexander.



CYPRIPEDIUM INSIGNE SANDERAE

ROYAL HORTICULTURAL SOCIETY.

March 4th, 1913.

MEMBERS of the Orchid Committee present : J. Gurney Fowler, Esq. (in the chair), Mr. Jas. O'Brien (hon. sec.), Sir Jeremiah Colman, Bart., Sir Harry J. Veitch, and Messrs. J. S. Moss, Stuart Low, Gurney Wilson, F. Sander, R. G. Thwaites, F. J. Hanbury, F. M. Ogilvie, T. Armstrong, A. McBean, W. Cobb, J. Charlesworth, J. Cypher, W. H. Hatcher, W. P. Bound, J. E. Shill, H. G. Alexander, W. Bolton, de B. Crawshay, W. H. White, A. Dye, S. Flory, and C. Cookson.

Messrs. Sander and Sons, St. Albans, were awarded a Silver Floral Medal for an interesting group containing *Odontoglossum princeps* (crispum *Luciani* × *Lawrenceanum*), an elegant flower, many excellent forms of *Cattleya Schröderæ* and *Trianae*, distinct varieties of *Lycaste Skinneri*, and some *Dendrobiums* of more than ordinary merit. *Cymbidium insigne* was also shown.

Messrs. Charlesworth and Co., Haywards Heath, were awarded a Silver Banksian Medal for a good group in which were various hybrids, the rare *Phaius simulans*, known in gardens as *P. tuberosus*, several species of *Sarcochilus*, and the interesting *Odontonia Cybele*.

Messrs. Stuart Low and Co., Enfield, secured a Silver Banksian Medal for an extensive group. *Cymbidium Wiganianum*, *Ansellia africana* and *Cypripedium macrochilum* were well shown. *Dendrobiums* included *Wardianum* and the scarce *linguæforme*, and *Cattleya Suzanne Hye de Crom* was in good form.

Messrs. J. Cypher and Sons, Cheltenham, were awarded a Silver Banksian Medal for a pretty group, containing the elegant *Angræcum sesquipedale*, many good *Dendrobiums*, *Masdevallias* in variety, and albino forms of *Lycaste Skinneri* and *Cattleya Trianae*.

Messrs. Hassall and Co., Southgate, staged a neat group, in which we noticed *Brasso-Cattleya Menda*, an excellent variety; *B.-C. Digbyano-Mossii* "*Queen Alexandra*," and

several good *Odontoglossum* species and hybrids.

Messrs. Armstrong and Brown, Tunbridge Wells, showed several plants of *Dendrobium Sibyl*, which had been raised from *crassinode* × *Linawianum*.

Sir Jeremiah Colman, Bart., Gatton Park, exhibited the new blush-white *Dendrobium bigibbum* "*Lady Colman*," *Zygopetalum rostratum*, the pretty *Cirrhopetalum picturatum*, and *Acanthophippium bicolor*.

E. H. Davidson, Esq., Orchid Dene, Twyford, showed *Brasso-Cattleya Cliftonii* var. *Dora*, a very large and elegant white flower; *Odontoglossum Twyford Gem* (*Rossii rubescens* × *formosum*), a pleasing hybrid; and several *Odontiodas*.

Sir Trevor Lawrence, Bart., K.C.V.O., showed a fine spike of *Eulophiella Peetersiana*, which had been in flower at Burford for a month, and a fine specimen of *Sophrone-Lælia Psyche*.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. G. Day), showed *Odontoglossum percultum* var. *Mrs. Goodson*, a creamy-yellow flower slightly spotted; *O. ardentissimum* var. *Herbert Goodson*, previously received F.C.C.; and *O. Capt. Humphrey*, probably a *Uro-Skinneri* cross.

Pantia Ralli, Esq., Ashstead Park (gr. Mr. S. Farnes), sent *Sophronecattlælia Marathon* "*Ashstead Park* var.," a very good form of excellent colour, and *Oncidioida Cooksoniæ*.

F. Menteith Ogilvie, Esq., The Shrubbery, Oxford, showed *Odontioda Charlesworthii* "*The Shrubbery* variety," one of the best of its kind, with a spike of 17 flowers; and *Odontoglossum Harwoodii* "*The Shrubbery* variety," of which a coloured plate was given in our issue of January last.

Walter Cobb, Esq., Normanhurst, Rusper, sent *Odontoglossum Lawrenceanum* "*Cobb's* var.," of excellent shape; *Odontioda Cooksoniæ*; and a very fine variety of *Sophroneitis grandiflora*.

Messrs. J. and A. McBean, Cooksbridge, staged *Odontoglossum eximium* "*Alpha*," which obtained a First-class Certificate;

Odontioda St. Fuscien; and the elegant *Tityus* var. *Excelsior*.

Mons. H. Graire, Amiens, France, showed *Odontoglossum* *Saturne* (*nebulosum* × *crispoharryanum*), an interesting hybrid much like the *nebulosum*.

Messrs. J. Veitch and Sons, Chelsea, showed a fine plant of *Eulophiella* *Elisabethæ*, with two spikes of wax-like flowers.

Mrs. Norman Cookson, Oakwood, Wylam, showed *Odontioda* *Bradshawiæ*, a good plant with a spike of 13 flowers.

Mr. W. A. Manda, St. Albans, showed a varied selection of *Cattleya* *Trianae* and a distinct variety of *C. Schröderæ*.

AWARDS.

FIRST-CLASS CERTIFICATE.

Odontoglossum *eximium* "Alpha," from Messrs. J. and A. McBean, Cooksbridge.—An extremely fine flower, petals of splendid form. All the segments handsomely blotched.

AWARDS OF MERIT.

Cattleya *Trianae* "Colossal," from Lieut.-Col. Sir George Holford, K.C.V.O., Westobirt (gr. Mr. H. G. Alexander). One of the best of the *Trianae*. Petals very broad, rose-purple; labellum well expanded, crimped at the margin, and of good colour.

Odontioda *Mossiæ* (*C. Nœzliana* × *O. maculatum*), from J. S. Moss, Esq., Bishop's Waltham.—An interesting hybrid of a reddish colour, the lip distinctly three-lobed.

Miltoniodes *Harwoodii* "Moss's variety," (*M. vexillaria* × *C. Nœzliana*).—The best variety yet seen, flowers having the form and shape of the *M. vexillaria*, rose-scarlet in colour.

Dendrobium *bigibbum* "Lady Colman," from Sir Jeremiah Colman, Bart.—A particularly pretty variety, with flowers of good shape and blush-white.

Oncidiodes *Cooksoniæ* Ralli's variety" (*Oncidium* *macranthum* × *Cochliodes* *Nœzliana*), from Pantia Ralli, Esq.—A darker and finer form than the one certificated on February 4th. Flowers almost covered with the *Cochliodes* red.

Lælio-Cattleya *Smilax* "Prince of Orange"

(*L.-C. Charlesworthii* × *C. Enid*), from Messrs. J. and A. McBean.—An excellent variety, with flowers larger than any previously seen and of a rich orange-red colour.

CULTURAL COMMENDATION

To Mr. W. H. White, Orchid grower to Sir Trevor Lawrence, Bart., K.C.V.O., for a splendid specimen of *Sophro-Lælia* *Psyche*, with 60 scarlet-red flowers.

To Mr. J. E. Shill, Orchid grower to Baron Bruno Schröder, for a well-cultivated specimen of *Cœlogyne* *pandurata*, with two spikes, carrying a total of 16 large flowers.

March 18th, 1913.

MEMBERS of the Orchid Committee present: Sir Harry J. Veitch (in the chair), Mr. James O'Brien (hon. sec.), Sir Jeremiah Colman, Bart., Messrs. Gurney Wilson, R. A. Rolfe, W. Wilson Potter, F. Sander, R. G. Thwaites, A. McBean, W. Cobb, W. H. Hatcher, W. H. White, S. Flory, W. Bolton, de Barri Crawshay, J. Cypher, J. Charlesworth, J. E. Shill, F. J. Hanbury, T. Armstrong, F. M. Ogilvie, A. Dye, and C. J. Lucas.

Messrs. Sander and Sons, St. Albans, were awarded a Silver Flora Medal for an extensive group containing several well-flowered plants of *Trichopila* *suavis*, the pretty *Vanda* *cœrulescens*, *Masdevallias* in great variety, *Brassavola* hybrids and several new *Odontoglossum* hybrids.

Messrs. Charlesworth and Co., Haywards Heath, secured a Silver Flora Medal for a large selection of choice Orchids, including *Eulophiella* *Elisabethæ*, *Cymbidium* *Pauwelsii*, *Cattleya* *Tityus*, several varieties of *Odontiodas*, *Phaius* *tuberculosis*, and *P. simulans*.

Messrs. Stuart Low and Co., Enfield, were awarded a Silver Flora Medal for a good group containing some very distinct forms of *Lycaste* *Skinneri*, the elegant *Sophro-Cattleya* *Leda*, a large variety of *Miltonia* *Bleuana*, well-flowered specimens of *Dendrobium* *Wardianum* and various hybrids.

Messrs. Armstrong and Brown, Tunbridge Wells, secured a Silver Flora Medal for a very effective and well-arranged group. In

the centre were large plants of *Cymbidium Ballianum* and *C. eburneo-Lowianum*, both beautiful varieties. Other plants included *Lælio-Cattleya Myra*, L.-C. *Olivia*, and various *Dendrobiums*.

Messrs. Hassall and Co., Southgate, were granted a Silver Banksian Medal for an effective group in which were many choice species and hybrids, a grand plant of *Angræcum sesquipedale*, the new *Brasso-Cattleya Menda*, and *Cypripedium Maudia*.

Mr. S. Flory, Twickenham, secured a Silver Banksian Medal for a neat group in which we noticed *Eulophia Saundersii*, *Odontoglossum Phocis*, and various *Oncidiums*, all well flowered.

Sir Jeremiah Colman, Bart., Gatton Park, exhibited a very interesting collection of *Dendrobium* flowers. These included many of the yellow section, the elegant *Othello*, *Lady Colman*, and the rare *Johannis* and *Smillia*.

Lieut.-Col. Sir George Holford, K.C.V.O., Westonbirt, exhibited *Odontoglossum Griselda*, allied to *harvengtense*; the interesting *Brasso-Cattleya H. G. Alexander*, and *Brassocattlælia Figaro*. See "New Hybrids."

de Barri Crawshay, Esq., Rosefield, Sevenoaks, staged the pretty *Odontoglossum Nerissa*, a richly-blotched *O. Solon*, several *Odontiodas*, and the elegant *Od. harvengtense Crawshayanum*.

Pantia Ralli, Esq., Ashted Park, Surrey, exhibited *Cattleya Trianæ* "Empress of India," a good flower with white sepals and petals, and a bluish tinted lip.

Baron Bruno Schröder, Englefield Green, Surrey, exhibited *Cattleya Schröderæ* "Madame Diana Beaumer," a very distinct variety.

Fergus M. Ogilvie, Esq., The Shrubbery, Oxford, staged *Odontioda Red Riding Hood* (*Rossi majus* × *Bradshawia*), a pretty and distinct hybrid.

E. R. Ashton, Esq., Broadlands, Tunbridge Wells, staged a very fine example of *Cattleya Suzanne Hye de Crom*, pure white.

Eric Davidson, Esq., Twyford, Berks, staged *Sophrocattlælia Hon. Barbara Wilson*,

a very dark variety; *Cattleya Suzanne Hye de Crom* "Orchid Dene variety," in which the flowers are of the normal purple colour, and *Odontoglossum James O'Brien*. See "New Hybrids."

H. S. Goodson, Esq., Fairlawn, Putney, showed *Lælio-Cattleya Charmian* "Goodson's var." (*L.-C. blechleyensis* × *C. Trianæ*), a large flower with white sepals and petals, and slight rose tint on the labellum.

Mr. J. Evans, Congleton, Cheshire, staged *Oncidioda Cooksonia* "Evan's var." (*O. macranthum* × *C. Noëliana*), a very beautiful variety with a spike of 16 rich crimson flowers.

Mons. Jules Hye de Crom, Ghent, showed *Cattleya Trianæ alba* "Souvenir Louis Verdonck," a fine variety with very broad white petals; and *Miltonia Hyeana stella*, a well-grown plant with six spikes of flowers having rose petals and the large lip blotched with dark crimson.

Mr. E. V. Low, Haywards Heath, staged *Lælio-Cattleya Mygdon* (*luminosa* × *Trianæ*), and an exceedingly good form of *Lycaste Skinneri alba*.

AWARDS.

FIRST-CLASS CERTIFICATE.

Brasso-Cattleya Cliftonii magnifica (B.-C. *Digbyano-Mossia* × *C. Trianæ*), from F. M. Ogilvie, Esq., The Shrubbery, Oxford.—A magnificent flower, undoubtedly the finest of all the *Brassavola* hybrids. Petals of immense size and width, silvery-white tinged with rose, lip broad, well fringed, and with purple front.

AWARDS OF MERIT.

Odontoglossum crispum Cobb's var., from W. Cobb, Esq., Normanhurst, Rusper.—A noble form of the true *Pacho* type. Petals extremely wide and well formed, the sepals with blotches as in the *Bonnyanum* style of flower. The plant carried a spike of 14 flowers.

Cattleya Trianæ alba "Souvenir Louis Verdonck," from Mons. Jules Hye de Crom, Ghent.—A very fine form with broad white sepals and petals.

Cattleya Tityus "The Shrubbery var.," from F. M. Ogilvie, Esq., The Shrubbery, Oxford.—

An extremely pretty hybrid between *C. Enid* and *C. Octave Doin*. The edges of the petals and lip undulated and fringed.

Cattleya Magnet (*Mossiae* × *Whitei*), from Lieut.-Col. Sir George Holford, K.C.V.O., Westonbirt.—Flowers of rich purple, much resembling the *Whitei* parent, which is *Warneri* × *Schilleriana*.

CULTURAL COMMENDATION

To Mr. W. H. White for *Odontoglossum Rossi*, several plants, and *Od. pulchellum*, all well grown and flowered. These have been in the Burford collection for more than 30 years.

To Messrs. Charlesworth and Co. for *Odontioda Bradshawiae*, a fine plant with numerous many-flowered spikes.

MANCHESTER ORCHID SOCIETY

February 20th, 1913

MEMBERS of the Committee present: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, J. Cypher, J. Evans, A. Hanmer, D. McLeod, W. J. Morgan, C. Parker, F. K. Sander, H. Thorp, Z. A. Ward, Wm. Thompson, and H. Arthur (secretary).

A large Silver-gilt Medal was awarded to Z. A. Ward, Esq., Northenden; Silver Medals to S. Gratrix, Esq., Whalley Range; A. Warburton, Esq., Haslingden; Col. J. Rutherford, M.P., Blackburn; and Messrs. J. Cypher and Sons, Cheltenham. A Bronze Medal was granted to the Rev. J. Crombleholme, Clayton-le-Moors; and other exhibitors included O. O. Wrigley, Esq., Bury; Messrs. Charlesworth and Co.; Mr. W. Shackleton, Great Horton; Messrs. A. J. Keeling and Sons; and Mr. J. Birchenall.

AWARDS.

AWARDS OF MERIT.

Cypripedium West Point Monarch (Mrs. Cary Batten × *Alcibiades*) and *Cypripedium*

Lady Dillon "West Point var.," both the property of S. Gratrix, Esq. (gr. Mr. J. Brown).

AWARD OF APPRECIATION.

Odontioda Schröderi (*Bradshawiae* × *crispum*), from Mr. W. Shackleton.

March 6th, 1913.

MEMBERS of the Committee present: Rev. J. Crombleholme (in the chair), Messrs. J. Cypher, J. Evans, Dr. Hartley, J. Lupton, D. McLeod, H. G. Morris, F. K. Sander, Wm. Thompson, H. Thorp, A. Warburton, Z. A. Ward, and H. Arthur (secretary).

A Silver-gilt Medal was awarded to R. Ashworth, Esq., Newchurch, for a meritorious group. Large Silver Medals were awarded to Z. A. Ward, Esq., Northenden; S. Gratrix, Esq., Whalley Range (gr. Mr. J. Brown); Col. J. Rutherford, M.P., Blackburn; and A. Warburton, Esq., Haslingden. A Silver Medal was granted to Messrs. Cypher and Sons and a Bronze Medal to the Rev. J. Crombleholme. Other exhibitors included J. J. Holden, Esq., Southport, Messrs. Sander and Sons, Messrs. Charlesworth and Co., Mr. D. McLeod, Mr. J. Birchenall, and Mr. J. Evans.

AWARDS.

FIRST-CLASS CERTIFICATE.

Odontioda St. Fuscien "Ward's var.," good flower, very dark in colour, from Z. A. Ward, Esq.

AWARDS OF MERIT.

Cypripedium Richard Ashworth (*Lathamianum giganteum* × *Leeanum Clinkaberry-anum*), *Odontoglossum Cloth of Gold* (*Wilckeanum* × *amabile*), and *Od. Leeanum majus* (*Black Prince* × *General Roberts*), all from R. Ashworth, Esq.

Odontioda Zephyr "West Point var.," and *Cypripedium Duke of Marlborough* (*Leeanum Lavertonianum* × *Adrastus Mariæ*), from S. Gratrix, Esq.

Odontoglossum A. E. Thompson (parentage unknown), and *Cypripedium Mrs. E. G. Guest* (*Thompsonianum* × *Alcibiades*), from Wm. Thompson, Esq.

Cattleya Trianae "Snowflake," from A. J. Keeling and Sons.



MAY, 1913.

NOTES.

ROYAL HORTICULTURAL SOCIETY.—Fellows of the Society are reminded that in order to prevent the packing of plants on Whit-Monday, the usual fortnightly meeting has been altered to Wednesday, May 14th. The Great Spring Show will be held at Chelsea, May, 20th, 21st and 22nd, in the Royal Hospital Gardens, and on the site occupied by the 1912 International Exhibition.



CATTLEYA SCHRÖDERÆ ALBA.—It has often been remarked that a pure white form of *C. Schröderæ* does not exist, for although many plants produce flowers which open in a white state and give every appearance of an albino, yet before many days a blush or light purple tint is assumed. Messrs. Stuart Low and Co., Bush Hill Park, have recently flowered *C. Schröderæ* "Purity," which is a large flower, quite white, and after the period of 18 days remained in precisely the same condition. This seems to be conclusive proof of the true albinism of the variety.



CYMBIDIUM LOWIANUM.—A splendid specimen of this elegant Orchid is in Mr. Wm. Tod's collection, Dry Grange, Allerton. It has recently carried 18 magnificent spikes, each six feet in length, and when exhibited at the Liverpool Show, in April last, attracted considerable attention. The North of England Horticultural Society awarded the

grower, Mr. Eaton, a Cultural Commendation. This Society granted a Silver-gilt Medal to the same exhibitor for three specimens: the *Cymbidium* already referred to, *Coelogyne cristata* Lemoniana, and *C. cristata* Chatsworth variety.



SERRATED FLOWERS.—Mr. W. Thompson, of Walton Grange, Staffs., has recently flowered a particularly beautiful and distinct *Odontoglossum* to which he has given the name Mrs. Thompson. The edges of the segments, especially the petals, are much serrated, or toothed, giving the flower a comb, or crest-like, appearance. The origin of this peculiarity may be traced to the influence of *luteo-purpureum* in the parentage, this species invariably having many prominent teeth on the edge of the petals. The parentage of *Od. Mrs. Thompson* is not known for certain, although it agrees very closely with *Od. Lambardeanum*, figured in the *ORCHID WORLD*, Vol. II, p. 220, a hybrid which also contains *luteo-purpureum* in its pedigree. It is not unlikely that both originated from the same seed pod. Since several hybridists have expressed an opinion that before long it may be difficult to obtain new features in the flowers, this serrated nature may prove to be a point worthy of their consideration. Many varieties of *Od. Wilckeanum* are rendered attractive by their toothed petals, and such flowers make a contrast to the smooth edged blooms of the *crispum* type.

DISTRIBUTION OF COLOUR.—At the Orchid Conference of the Royal Horticultural Society, held November, 1912, and of which a full report occurs in the March issue of the Society's *Journal*, Professor Bateson called attention to the curious problem presented by the distribution of colours in the varieties of *Odontoglossums*. Inasmuch as the brown colours are evidently due to the combination of a purple sap colour with a yellow (presumably due chiefly if not exclusively to presence of yellow plastids), it is a paradox that brown spots may occur on a white ground. We should expect either that all spots on a white ground would be purple, or that if the spots were brown there would be yellow spots or yellow edges associated with them. In certain forms yellow spots do occur on a white ground, without any admixture of purple or brown. This, however, is natural enough. But since brown spots on a white ground may occur without any separate yellow marks, the fact must be taken to mean that the distribution of the purple and of the yellow in such cases coincides, with the result that the spots are brown though the ground is white. Since, however, the factors responsible for the purple and for the yellow respectively must surely be genetically independent, this coincidence is remarkable. There are often, of course, purple spots in addition to brown ones, but no separate yellow spots, or even yellow edges, to the brown spots in these cases.



COLOUR OF FLOWERS.—Some twenty-five years ago Mr. Smee experimented with flowers and plants in a weak solution of silicate of soda, and he noticed that these were affected by the solution according to their colour. The following facts were communicated by him to the Scientific Committee of the Royal Horticultural Society. The colours disappear in the following order:—Blue, lilac, red, and brown, whilst yellow was the most persistent. Greens behaved according as blue or yellow predominated in its composition. The question occurred whether the white varieties of flowers are not formed among plants in a similar order. In the poor

varieties of *Vanda coerulea*, the petals are almost white with very pale blue veining. In *Cattleya* the colour of the petals and lip disappear, leaving the yellow throat and the pale pink tint, which so often spoils a white *Cattleya* from a florist's point of view, as the remains of the red tint in the mauve colour. Therefore, as yellow is so persistent, we cannot expect a white variety to appear amongst *Cattleya citrina*. The white *Odontoglossum crispum* is due to the disappearance of the brown blotches, leaving only the yellow markings on the column; and in the case of the yellow triumphans, which is a poor form of the ordinary type, the brown blotches are either absent or are in process of disappearance.



ORCHID SALE.—A total sum of over £1,200 was realised by Messrs. Protheroe and Morris, Cheapside, by a sale by auction of 165 duplicate Orchids from the Shrubbery collection, the property of Mr. F. Menteith Ogilvie. The following figures are of interest:—*Odontoglossum crispum xanthotes* Charlesworthii, five bulbs, 21 gns.; *O.c. xanthotes* White Lady, four bulbs, 11 gns.; *O.c. xanthotes* Snow Queen, seven bulbs, 16 gns.; *O.c. Queen Empress*, five bulbs, 30 gns.; *O.c. Magnum Bonum*, four bulbs and a new growth, 38 gns.; *O.c. hololeucum*, five bulbs, 13 gns.; *O.c. virginale* Madonna, three bulbs and a new growth, 13 gns.; *O.c. G. F. Moore*, four bulbs and a new growth, 8½ gns.; *Cattleya gigas* Mrs. E. Ashworth, four bulbs, all leaved, 13 gns.; *C. Trianae* The Premier, four bulbs, all leaved, 36 gns.; *C.T. Grand Monarch*, six bulbs, all leaved, two of which are leads, 100 gns.; *C.T. Mooreana*, four bulbs, all leaved, 30 gns.; *Lælio-Cattleya* Golden Glory, five bulbs, two leads, 26 gns.; *Brasso-Cattleya Cliftonii magnifica*, five bulbs, in flower, 210 gns.; *Miltonia vexillaria* G. D. Owen, five bulbs, two new growths, 120 gns.; *M.v. chelseaensis*, fourteen bulbs, four strong leads, 23 gns.; *Cypripedium* *Elatior* Shrubbery variety, one strong growth and young break, 15 gns.; *Odontoglossum* *Ossulstonii* Shrubbery variety, four bulbs, two of which are leads, and a flower spike,

36 gns.; *O. Pescatorei* Duchess of Westminster, two large bulbs, one new growth, 42 gns.; and *Sophro-Lælia Gratrixia magnifica*, four bulbs, one with a lead, 3½ gns.



PROTECTION OF POLLEN.—The Royal Horticultural Society has taken steps for the better protection of Orchids exhibited at their fortnightly meetings by reserving a portion of the staging for those plants which have received certificates. An attendant will be in charge, and a rope affixed some three feet away from the staging to prevent visitors from passing too near the plants. A printed notice with the following words will be attached:—“These flowers may on no account be touched by anyone during the continuance of the Show. By order of the Council.” Exhibitors will therefore have a safe place wherein to deposit their valuables, but it remains to be seen to what extent it will be utilised. In the first place, it will be very difficult for anyone to obtain a clear view of these plants owing to the large number of admirers; and, secondly, many exhibitors will prefer to leave them in their own groups situated in various parts of the Hall, for it is well known that certificated plants are the centre stars of attraction in most Orchid groups. However, the Society has done its best to prevent a repetition of the theft of pollen reported on page 148.



SANDER'S LIST OF ORCHID HYBRIDS.—This most useful book of reference to the many hybrids, both of past and present cultivation, fills a long felt want, for many amateurs have sought in vain for information which the book now imparts. Table 1 gives the names of the hybrids, arranged in alphabetical order, with the seed and pollen parents. The second table records, in the first column, those plants which have been used as seed parents, also arranged alphabetically, the name of the hybrid obtained being given in the third column. The third table is similar to the second, but gives the names of the pollen parents in the first column. Natural hybrids are included, but distinguished from those artificially raised by an asterisk prefixed

against the name. The list of *Odontoglossum* and allied genera has been compiled by Mr. de Barri Crawshay, and has thereby been brought up to date by the best existing authority. The book, which is substantially bound, consists of 140 pages, including the addenda, and has the advantage of numerous additional blank pages interleaved for the purpose of recording subsequent hybrids. The published price is 12s. 6d., and copies may be obtained from Messrs. Sander and Sons, St. Albans.



Cypripedium Roundhead.

CYPRIPEDIUM ROUNDHEAD.—The parentage of this hybrid, illustrated above, is Earl of Tankerville (*exul* × *nitens*) × *nitens* (*insigne* × *villosum*), from which it will be seen that only three species are included. No one need suppose that it is necessary to combine a large number of species in order to obtain a superior hybrid, although such combinations may often result in the formation of a new cross. In *Cypripedium Roundhead* we see the result of selecting and hybridising only such flowers as show a tendency to increase the width and compact nature of their segments. When once a start has been made in this direction, every succeeding family includes individuals having a natural inclination to accentuate the improvement, and by this means the hybridist

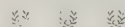
is able to make rapid headway with his work. *Cypripedium Roundhead* has been raised by Mr. H. G. Alexander, and when exhibited by Lieut.-Col. Sir George Holford, K.C.V.O., at the Royal Horticultural Society, April 1st, 1913, a First-class Certificate was awarded.



Cymbidium Humblottii.

CYMBIDIUM HUMBLOTTII.—This rare Madagascan *Cymbidium* was originally discovered by Mr. Humblot, and first flowered in Europe by Mr. C. Ingram, of Godalming, who exhibited the plant at the Royal Horticultural Society, June 7th, 1892, when a Botanical Certificate was awarded. Little more appears to have been heard of the species until Mr. Peeters, of Brussels, exhibited a plant at the Holland House Show, June, 1907, when it obtained an Award of Merit. Some two or three years ago Messrs. Charlesworth received a few newly-imported specimens from Madagascar, which under careful cultivation have exceeded all expectations. The plant is a robust grower, with stout rhizomes of an ascending nature, and the leaves arranged in fan-like form. The inflorescence is remarkably distinct, having

numerous branches, and, when fully developed, carrying about 150 flowers of light greenish-yellow colour. The sepals thick and fleshy, the petals inclined forward over the column, and slightly spotted on the lower inner half. The labellum is much crisped at the apex, the side lobes carried upwards over the column; the centre raised portion of the median lobe golden-yellow, and the whole heavily spotted with black, and having a narrow black margin round the extreme edge. The illustration shows a life-size flower from the plant exhibited by Messrs. Charlesworth and Co., at the Royal Horticultural Society, April 1st, 1913, when a First-class Certificate and Cultural Commendation were awarded.



ODONTOGLOSSUM CERVANTESII.—One of the neatest and prettiest species of cool house Orchids is to be seen in *Odonoglossum Cervantesii*. It much resembles the better known *Od. Rossii*, but chiefly differs in having concentric broken crimson bands on the lower part of the sepals and petals. The close resemblance which these markings have to the web of a spider have caused the plant to be known as the Spider Web Orchid. In the *Botanical Register*, of July, 1845, a good illustration of this species is given, together with the method of culture in vogue at that time. This information, when compared with that of the present day, shows how great a change has taken place, not only in regard to the temperature, but also in the potting compost. The Orchid grower of 1845 was advised to treat the *Odonoglossum Cervantesii* as follows:—"It should be potted in turfy heath-mould in the same way that Orchidaceous plants generally are. In summer an ample supply of water should be given, and the temperature kept up to about 80 degrees by day and about 70 degrees by night. In autumn as the pseudo-bulbs become matured, water should gradually be withheld, and for a few weeks in winter little or none will be required, providing the house can be filled with steam for about half-an-hour every fine day. Although many plants in this order succeed well on blocks of wood, without any soil whatever, still those under pot culture are

much benefited by having it renewed every season; this should be done early in spring when the plants begin to grow." One of the finest varieties of this species is that known as *decorum*, which appears to have been first exhibited by Sir Trevor Lawrence, at the Royal Horticultural Society, February 14th, 1877, when it received a First-class Certificate. The flowers are much larger and have petals considerably broader than in the ordinary type. By some authorities this is regarded as a geographical form, and may, therefore, have been originally sent to this country by more than one plant. Other specialists believe that only one plant was discovered and that this has been distributed by means of propagated pieces. However, the variety is now exceedingly scarce, and has been almost forgotten until a plant flowered in Mr. Richard Ashworth's collection, at Newchurch, Manchester, and was exhibited at the Manchester Orchid Society, April 3rd, 1913. This was labelled *Od. Cervantesii decorum* Ashland's variety. Mr. J. Howes remembers a plant of the variety *decorum* which was in the collection of Mr. Fred. Horsman, and there is just the chance that this may have appeared once again in flowering condition.



SANDER CUP.—The 25 guinea Silver Cup presented by Messrs. Sander and Sons to the Royal Caledonian Horticultural Society has now been won three times in succession by Mr. R. Brooman White, of Arddarroch, and therefore becomes his property. At the Society's meeting, April 9th, Mr. R. B. White (gr. Mr. James Smith) staged a fine exhibit of *Odontoglossums* arranged in a space 12 feet by 6 feet, and was awarded the first prize in addition to the Sander Cup. Other exhibitors included Sir A. B. Milne, Bart., Inveresk Gate, Musselburgh; Mr. R. Hindle, Edinburgh; and Mr. C. W. Cowan, Dalhousie Castle, Bonnyrigg.



ORCHID CATALOGUE.—Messrs. Wm. J. Biggs and Co. have issued an attractive illustrated catalogue of Orchids in their establishment at Canonbury Road, Enfield.

ORCHID EXHIBITION AT CALCUTTA.

“**L**OVERS of flowers in Calcutta,” remarks the *Statesman*, “always look forward with anticipations of pleasure to the annual show of Orchids held by Mr. S. P. Chatterjee at the Victoria Nursery. For a quarter of a century this show has been one of the events of the cold-weather season, and has been visited annually by every Viceroy since Lord Dufferin's time. Lord Carmichael went on Tuesday, March 11th, to the show, which was opened to the public Wednesday afternoon, and will remain open until Sunday.

“Mr. Chatterjee was the pioneer of the nursery business in Calcutta, he having started some forty years ago. A few years later he went to England to undergo a thorough course of training in horticultural work, and worked for some time in Kew Gardens and other important gardens in England; then returning to Calcutta, he started the work which has transformed what was then a jungle into park-like grounds, with splendidly-equipped conservatories, rockeries and greenhouses, in which are grown some of the rarest Orchids, ferns, and other plants known to the horticulturist to-day.

“The Orchid house during the show was a perfect picture of floral beauty, the delicate perfume of the lovely flowers giving an added pleasure to the senses. There were over forty varieties of these beautiful flowers on show, including a number of quite rare blooms. One of the novelties of the exhibition was *Vanda coerulescens*. The natural colour of this type is light blue, but Mr. Chatterjee's specimen is a delicate pink—which makes the bloom the novelty that is so dear to the Orchid collector's heart. There were five varieties of *Phalænopsis*—the Queen of the Orchids—one of them being *P. Stuartiana*; while of the six types of *Oncidium*, one, *O. Carthaginense*, is very seldom met with in India. Amongst the other blooms to be seen here were fifteen varieties of *Dendrobiums*, and others too numerous to be specified.

"Although the Orchid house is the chief attraction, there are many other flowers that are well worth seeing, and it is very pleasant strolling through the shaded plant and palm houses, or in the prettily laid out grounds behind the nursery."

ORCHIDS AT CALCUTTA. INDIA.

Orchidists in Europe would welcome the occasional exhibition of Orchids which we have here every Spring, as the numerous Dendrobies and other varieties common to India, and many of the important species, including Cattleyas, Cypripediums, Phalænopsis, and Oncidium, are not only to be seen in full bloom, but the flowers are larger and richer in colour than those grown in glass conservatories.

In India the direct sunlight plays a very important part in the culture of Orchids. It reaches the plants in a subdued form through the grass thatched roofs. Again, our houses are constantly open, being built entirely of lattice on all sides, permitting a free circulation of air at all times.

Seldom, if ever, is protection other than the grass thatching of our conservatories necessary, as frost in the depth of winter is unknown in Bengal. Consequently, with these advantages in our favour, we naturally expect our Orchids to bloom to perfection.—*Chas. Power, Orchid Villa, Barrackpore, Calcutta.*

ORCHID COLLECTING.

SOME interesting notes on the difficulties of Orchid Collecting are contributed to the *Journal of the North of England Horticultural Society*, by Messrs. Mansell and Hatcher, whose collector, Mr. Ryall, died on his way back to England after three years' work in South America.

In the autumn of 1909 Ryall left Southampton on a Royal Mail steamer for Barranquilla, from thence he journeyed up the river Magdalena, and eventually reached Bogota, the capital of Colombia. Having

introduced himself to his money agents he proceeded to buy ten mules. The wood for packing cases was the next consideration. This had to be sawn up in special lengths to strap on to the mules. Nails, etc., had also to be taken up so that boxes could be made on the collecting ground.

Ryall's first experience of mule riding seems to have been very trying, but he liked the experience of sleeping under the stars. For the first ten days everything went well, but on the eleventh night he was aroused by his attendants and informed that the natives had taken his wood, and a look across the valley soon convinced him that this was only too true. They had made a bonfire of the boards. This meant a dreary ride back to Bogota for more boards, and a month wasted.

A very fine batch of *Cattleya Trianae* was discovered. The plants were just in their dormant stage, and travelled well. It is of interest to know how the actual collecting is done. Usually a site is selected outside a big forest, the natives go in with the collector, and he superintends the cutting down from the trees. As much root as possible is taken, and in the evening the plants are tied in bundles and carried to the camping ground. About three weeks' hard work is required to get a decent consignment. Then the making up of the cases is commenced. By the use of bracken, which is cut and dried, the plants are carefully packed in layers. Plenty of air is allowed in the cases, which, after being marked with shipping numbers, are loaded on mules, and the journey to Honda, the chief river base, is commenced.

Ryall found the air in the district full of moisture at night and in the early morning, whilst bright sunshine during the day practically dried the plants. At times strong winds prevailed.

MEDALS FOR ORCHIDS.—At the Bournemouth Spring Show Messrs. Charlesworth and Co. received a Gold Medal for their exhibit of Orchids. At the Liverpool Show, April 2nd, Messrs. Mansell and Hatcher, and Messrs. Cowan, Ltd., both received Gold Medals for attractive displays.

THE Ashlands Collection.

NEWCHURCH,
MANCHESTER.

SOME four centuries ago the forest of Rossendale was a royal hunting ground, and so thick was the undergrowth in the valleys that it formed a place of concealment for both human and animal robbers. Consequently, travellers, in bygone days, sought to avoid those danger places and invariably kept to the highest ground. This fact accounts for many of the olden roads being along the hill tops. All this, however, has changed, many will say for the better. The forest has long since disappeared, and in its place have arisen numerous factories with their countless chimneys. It has been said that where years ago a squirrel could traverse the Rossendale district by jumping from tree to tree he can now do so by jumping from chimney to chimney. However, the atmosphere is still sufficiently pure to allow of remarkable results being obtained in the

cultivation of Orchids. It is in this hilly district of Rossendale, some 800 feet above sea level, that the collection of Richard Ashworth, Esq., has long been established.

The Ashworth family, so well known in Lancashire, can be traced back to the year 1100. To-day it has a worthy member in Mr. Richard Ashworth, who besides being a Justice of the Peace for the County of Lancaster, is Treasurer of the Manchester Orchid Society, and at the age of 65 spends the leisure hours of his otherwise busy commercial life in the interesting hobby of Orchid culture. Mr. Ashworth, it



Richard Ashworth, Esq., J.P.

should be mentioned, is looked upon as the authority on the Rossendale dialect, a subject upon which he has several times lectured.

Twenty-one years ago saw the commencement of this collection, and during the last sixteen years the owner has been engaged in selecting choice forms and varieties with such

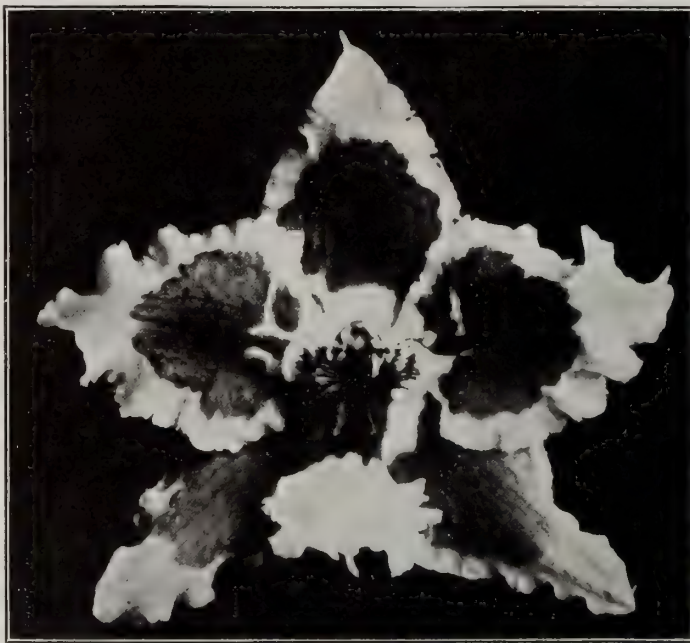
care and judgment that it now holds one of the premier positions in the country. The numerous Medals and Awards fully certify this fact.

Dendrobiums have recently been making a gay show in the large conservatory, and considering how useful these are in the early spring months, it is somewhat surprising that they are not more often cultivated, but, as in most things, fashion, and this alone, may be the cause. Before long their popularity will once again return. *Dendrobium* Bryan, a scarce hybrid between *luteolum* and *Wardianum*, and difficult to cultivate, flowers every season. *Dend. R.* Ashworth is unique, all the stock being in this collection. The large whitish flowers have a pink throat. Another very distinct hybrid is *D. Rainbow*. The golden-yellow chessingtonense always

attracts attention. In a spacious house *Bulbophyllum Ericsonii* and *B. virescens* grow with remarkable vigour, the leaves being much larger than usually seen. *Epidendrum radicans* with its scarlet flowers, and *E. hybridum* with its rose-red flowers, almost cover the end of the house with their trailing stems. *Lælia anceps* in great variety, and various *Dendrobiums*, are suspended from the roof, and on the front stage a large number of promising *Cypripedium* seedlings are fast reaching the flowering condition.

In a cool house *Lycaste Skinneri* is cultivated with great success. The numerous plants have produced a continuation of bloom

from last November until the present time. As many as 13 blooms have been seen on single plants. Rather more shade than usual is given to these plants, which results in the flower stems being drawn to a considerable length, although the flowers in no way appear to suffer. Suspended in baskets are various varieties of *Masdevallia chimæra*, their curious flowers proving a source of endless wonderment, and having the additional charm of being produced throughout the whole year.



Odontoglossum ardentissimum Robsonæ.
In the Ashlands collection.

One of the surprises to be seen in the Ashlands collection is the vigorous way in which the blue-flowering *Dendrobium Victoria Regina* grows. The plants are cultivated in pans suspended from the roof of a cool house, and the thick substantial bulbs and leaves acquire a healthy bronze tint seldom seen in other collections.

Odontoglossum citrosimum is equally well cultivated. The plants are kept quite dry during the winter, and, almost without exception, produce long pendulous spikes of bloom every spring time. *Boilea Lalindei* flowers several times during the year, its curiously constructed blue-tinted flowers being much appreciated. *Zygopetalum Perrenoudii* is another elegant Orchid, the rich purple colour on its large lip showing to great advantage.

Seedlings are always of interest. The first one raised by Mr. Ashworth was *Cymbidium Lowio-eburneum*; it is now 14 years old and a noble specimen. The *Odontoglossum* seedlings are grown upon an elevated stage

occupying the whole length of one house; they number many thousands, and some of the largest are commencing to flower. *Cypripediums* and *Cattleyas* are also being raised in large numbers.

The *Trichopilia* genus is a favourite one with Mrs. Ashworth, and, consequently, is well represented. *T. crispa*, with its undulating margins; *T. tortilis*, with its twisted sepals and petals; *T. suavis*, with its fragrant flowers; and *T. Backhouseana*, one of the finest of the genus, are among the kinds cultivated at Ashlands.

Cypripediums are largely grown, the varieties including almost all the best certificated plants. Those which have been specially fine during the last season include: Daisy Barclay, Dreadnought, Alciades illustre, The Premier, Lawrenceanum, Hyeanaum, fulsha wense,

and the rare *Druryi*. *Cyp. callosum* Sanderæ has been a perfect picture with its numerous flowers. One of the many successful results in hybridising has been *Cypripedium* R. Ashworth, obtained by crossing *Lathamianum giganteum* with *Leeanum Clinkaberryanum*. The upper part of the dorsal is white; the other part together with the petals and labellum is bright yellowish-brown, reminding one of the elegant variety known as Moonlight. The shape leaves nothing to be desired, and the flower kept fresh for the long period of 12 weeks.

Miltonias are quite at home in the place selected for their culture. There is no sign of the leaf disease so often seen. The varieties include Hyeana, Bleuana, Empress Augusta Victoria, and chelseaensis.

Cattleyas are well represented, but, unfortunately, do not grow with the same vigour as those situated in more sunny counties. The growing season does not appear to be long enough to enable the plants to ripen their bulbs in the autumn

sufficiently to produce thick textured flowers. Nevertheless, it is surprising what can be accomplished when the cultivator puts his best interest forward. *Cattleya labiata* is represented by the elegant forms known as Gilmouria, Amesiana and Mrs. E. Ashworth, the latter having pure white sepals and petals and the front of the labellum bright



Cypripedium Godefroya leucochilum Hodgkinsonii.
In the Ashlands collection.

crimson-purple. It received a First-class Certificate, Royal Horticultural Society, October 13th, 1896. *C. Gaskelliana alba* is represented by a magnificent variety measuring $9\frac{1}{2}$ inches across the petals. *C. Percivaliana alba* is also a large flowering form. *C. Schröderæ alba* "Mrs. H. Ratcliffe," *C. Warneri alba*, and the very scarce *C. Mendelii alba* are also to be seen in excellent health. *C. Lueddemanniana Stanleyi* has petals 3 in. in width, and a pure white variety of the species bearing the name of Empress is extremely beautiful, the whole flower

having a delicate veining. *Lælia tenebrosa* "Walton Grange" variety and *Lælia pumila alba* are two other varieties worthy of special mention. Of course, in such a large collection as this there are countless plants of the various *Cattleya* and *Lælia* species.

Cypripedium bellatulum succeeds well when grown in suspended pans and kept fairly dry. Many plants are to be seen, the

Platyclinis is represented by *Cobbiana*, *glumacea*, and *filiformis*. A link with the past is to be seen in several curiously shaped carved pots and baskets which were made by the late Sir Charles Strickland, and used by him for Orchid growing.

Odontoglossums are to be seen at their best during the present season. At Ashlands they have given an abundance of flower for many



Cypripedium Rolfei, R. Ashworth's var.
(*bellatulum* × *Rothschildianum*).

varieties including *album*, Queen of Spain, which is very distinct, *Exhim's* variety, well known as the darkest form, and Richard Ashworth, a unique variety in which the segments have one half of their surface white and the other half dark claret colour. *Cypripedium niveum* is no less happy in the same position.

weeks past; in fact, all through the year there is something of interest in these houses. Very few greenhouses can show such an abundance of colour. *Cochlioda* hybrids are in great variety, *Odontiodas* and *Oncidiodas* both adding their rich red colour to the general display. One of the latest additions is the Ashlands variety of *Oncidioda*

Cooksoniæ (*C. Nœzliana* × *On. macranthum*). *Odontoglossum triumphans* "Hesperides" is of the broad petalled type now rarely seen. *O. crispum* "R. Ashworth" is of special merit; the large flower has all the segments handsomely blotched with reddish-purple. *O. ardentissimum* Robsonæ is undoubtedly the finest form of this popular hybrid. The distinctive features are the decisive manner in which the bright violet-purple blotches are arranged and the clear white margin to all the segments.

Odontoglossum aspersum, with a green tint on the petals, *O. cordatum aureum*, and *Od. grande aureum* are three rarities. *Od. crispum* "Perfection," as well as *crispum xanthotes* Warburtonæ are other examples in this valuable collection. There are many *Odontoglossum* hybrids of more than ordinary merit, of which mention must be made of *eximium* "Excelsis," *illustrissimum*, and *Cloth of Gold*, the latter a very fine result obtained by crossing *Wilckeanum* with *amabile*. The large flower is of excellent shape, golden-yellow, and marked with purple-red.

One of the gems in the collection is *Od. Cervantesii decorum*, a very large and distinct variety; the pollen of it has been placed on a good form of *nebulosum*. A pretty variety of *Od. Ruckerianum* is of interest, for the reason that at one time it was in the B. S. Williams collection, long since dispersed.

With such an old and extensive collection it is impossible to do more than mention but a few of its many specialties. Anyone who has spent a few years in the study of these plants knows full well how vast the subject is, and only a personal visit can give one a correct impression of the importance of the Ashlands collection. These short notes may, however, give some proof of the choice specimens and the beautiful flowers which they produce.

The whole collection is in a remarkable healthy condition, and when an exhibit was sent to the Temple Show, May, 1903, a Silver Lindley Medal for culture was awarded. At the present time this valuable and interesting collection is in charge of Mr. Gilden, whose

name will be remembered by *Od. crispum* *Gildenii*, and who started the study of Orchids with Messrs. Charlesworth and Co., subsequently being engaged by Mr. Hardy, of Tyntesfield, Mr. Cookson, of Wylam, and the Earl of Tankerville, at Chillingham.

ORCHIDS FOR AMATEURS.

IT has often been said that *Odontoglossums* are difficult plants to grow, and if the house is kept hot and dry this statement is quite correct. Almost all the failures with the culture of *Odontoglossums* are due to the unsuitable atmosphere in which amateurs attempt to grow the plants. There is always a certain amount of fear and trembling when an amateur commences Orchid growing. He has heard or read that great care and experience are necessary to reap success, and, therefore, imagines that he must give unceasing attention to stoking the fire and allowing all the bright light possible to reach the plants. These erroneous ideas are entirely the cause of his failures.

Odontoglossums require a cool, shady, and moist atmosphere, very similar to that which maidenhair ferns enjoy in an ordinary greenhouse. The temperature should not go below 45 degrees at night time, and during the day anything from 50-60 degrees will be suitable. Of course, on hot sunny days the temperature will rise considerably, often to 70 or more degrees, but if plenty of moisture is in the atmosphere very little harm will accrue.

Whenever the outside atmosphere is moist and not much below 50 degrees a free ventilation may be given, but cold draughts and very dry air are extremely injurious. Amateurs should always remember that ventilation takes away a great deal of the atmospheric moisture, and, therefore, all staging, the paths, and underneath the hot-water pipes, should be kept constantly moist. Many ordinary greenhouse plants only require a moist soil, and never mind how dry the atmosphere may be, but such is not the case with *Odontoglossums*, for these require moisture in the air quite as much as in the compost.

The natural home of the *Odontoglossum* knows no winter or summer such as we are accustomed to. All the year through the plants enjoy a fairly regular temperature and condition of moisture. Now and again an excess of rain or a few weeks drought may appear unfavourable, but the plants are so robust that they quickly recover when more favourable conditions return.

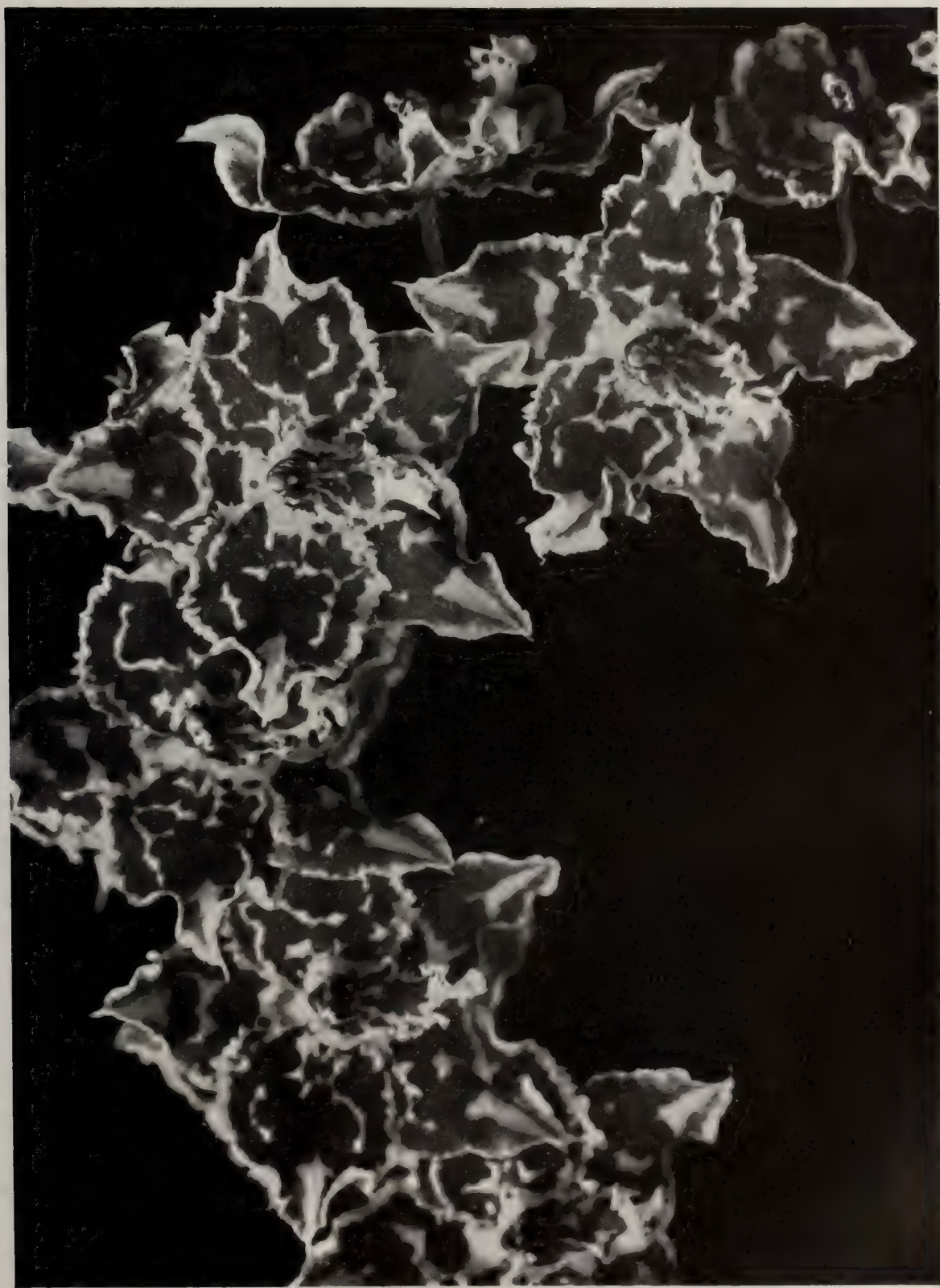
It must always be remembered that extremes of heat are as injurious as low temperatures. During the hot summer months all our care and attention will be required to keep the *Odontoglossum* house from getting too warm. The method of opening wide all the doors and ventilators, and thus allowing the hot and dry air to come in contact with the plants, is very injurious. The aim of the cultivator should be to keep the internal air as moist and cool as possible by careful shading and frequent damping down of all the staging and paths. With some of the old forms of greenhouses, in which the side ventilators are placed on a level with the staging, there is nothing to moisten the fresh air before it reaches the plants, but in the modern constructions ample ventilation is afforded almost on a level with the ground, and if some coarse sacking material kept constantly moist is suspended near the openings a very beneficial atmosphere will be maintained. Top ventilators will always be required, although they are often opened too widely, and thereby produce a draught. These only require opening just sufficiently to allow the heated air to escape.

On all fine days the foliage may be finely syringed with rain-water of the same temperature as the house, taking care that the greater part is evaporated before the close of day, especially if the coming night is likely to be cold. Careful cultivators will give a look at all the plants before leaving the house in order to find any plants with surplus water left standing in the new growth. Any plants in this condition should be turned over and the water shaken out. Slight moisture on the leaves is beneficial, but a new growth left full of water on a cold night will frequently be

destroyed, although the damage may not be apparent until a few days have passed.

Insect pests are not numerous, the principal one being thrip, which does an immense amount of damage in a comparatively short time. The new flower spikes are generally attacked, a sure indication being the rusty brown appearance and the arrest of development. These small insects are almost invisible to the naked eye, but the use of a lens will easily find them out. A dry atmosphere favours their increase, and in a short time they will completely spoil the whole plant. Early attention is necessary to prevent this pest spreading to every plant in the house, and, fortunately, its destruction is easily carried out by the use of a suitable insecticide, or washing the plants with a weak solution of soap and water. There are some growers who regularly spray their plants every second or third week with one or other of the various nicotine washes, and such practice invariably maintains the house and plants in a clean condition. Fumigation is very beneficial, especially when the house is in good structural condition and can be made to hold the vapour, but in old houses this is a difficult matter and the most satisfactory results will come from spraying and washing the plants.

With *Odontoglossums* the amateur has a very wide and varied assortment to choose from, possibly larger than any other genus. Two species that may be regarded as the foundation of all the *Odontoglossum* hybrids are *crispum* and *Pescatorei*, the former gives size and substance, the latter branching spikes. The varieties of *crispum* are so numerous and beautiful that a house is often entirely devoted to their culture. With amateurs, however, this is not always possible, and in view of the elegant hybrids now being produced it is not surprising to find a general desire to include as varied a selection as is possible with due respect to expenditure and accommodation. *Odontoglossum Harryanum* has worked wonders in the genus, not only with its strong constitution, but with its rich coloration. By its use we have hybrids too numerous to mention, yet almost all worthy of cultivation.



Odontoglossum eximium Alpha. Received First-class Certificate, Royal Horticultural Society, March 4th, 1913.
Exhibited by Messrs. J. & A. McBean, Cooksbridge, Sussex.



Cypripedium caudatum, a specimen in the Wyndhurst collection,
Lenox, Mass., U.S.A.

CYPRIPEDIUM CAUDATUM.

THE great singularity of this Central American Orchid causes it to be a source of considerable interest, and anyone seeing the plant in flower for the first time cannot be otherwise than mystified. The large flowers have the upper sepal creamy-white, with greenish veins; the long ribbon-like petals, which frequently attain a length of 30 or more inches, are brownish-crimson, with yellow markings; lip bronzy-green, with basal part yellow, and beautifully marked with reddish-brown.

Our illustration depicts a symmetrical example flowering in the Wyndhurst Gardens, Lenox, Mass., U.S.A., where it has been successfully cultivated by Mr. Alfred J. Loveless, who is also a skilful photographer. The plant is in a six inch pot, and carries six flowers, two on each of the three spikes.

Mrs. Lawrence, of Ealing Park, one of the most enthusiastic and successful amateurs of bygone days, and mother of Sir Trevor Lawrence, Bart., was one of the first to observe the wonderful nature of the ribbon-like petals, and her ardent affection for the plant was shown by the careful way in which she daily recorded their growth.

The suggestions put forth to account for the length of the petals and to what use they can be to the plant have been many and varied. Not the least interesting is the one that the petals by extending to the ground serve the purpose of a ladder by which insects are able to ascend in order to collect the nectar, and by so doing fertilise the flower.

In the variety known as *Wallisii* the flowers are much paler in colour, nearly white, with the lip slightly rose spotted. In the variety *Warszewiczii* the foliage is shorter and darker, the flowers much brighter in colour, the petals flushed with rose-purple. Another variety named *Luxembourg* has the upper and lower sepals of butter-yellow, veined with green, the pouch dull green and petals dull purple.

Cypripedium caudatum Lindenii, formerly known as *Uropedium Lindenii*, has the pouch turned into a third ribbon-like petal of equal

length to the lateral ones. The same peculiarity has occurred in the variety *Wallisii*.

NEW HYBRIDS.

Odontoglossum lo.

Ruckerianum × *nobile*
(*Crawshayanum*) (Veitchianum)

A concise description of this remarkable example of hybridity and heredity would be "Reversion run wild." It is impossible to believe such a pair of parents could be blessed with such an offspring. There is no doubt as to its correctness, for the cross *was* the only one I made with the plants. I think it *will* also stand alone.

Shortly described, it is the worst form of *Od. baphicanthum* (Reich. fil.) I have seen. Sepals have an occasional spot as big as a pin's head. Petals are pure and immaculate, having the small basal line seen in *gloriosum*. The colour of both sepals and petals is very slightly rose tinted creamy-yellowish-white.

The lip is equally bad, like a narrow *Coradinei* lip slightly pandurate. This feature and the coloured underside of the column are the *only* evidence of the gorgeous ♂ parent. The illustration of the seedling *crispum* in *Orchid Review*, 1905, p. 112, has much better form.

I name it solely for the purpose of record, as someone *may* raise the cross and bloom a good variety from worse parents. Personally, I shall not attempt to wrest that honour from them.

de B. Crawshay, April 13th, 1913.

CATTLEYA MENDELISSIMA.—The combination of *Mendelii* and *Lueddemanniana* has produced another spring flowering hybrid in the *Cattleya* section, although it cannot be said that either species has been really improved by so doing. Still, the hybrid is worthy of record. Raised by Messrs. J. and A. McBean, Cooksbridge.

ODONTOGLOSSUM DAISY.—Messrs. Hassall and Co., Southgate, have raised an interesting hybrid between *Kegeljani* (*Polyxanthum*) and *Lambeauianum*. The creamy-yellow ground colour at once distinguishes the flower from the large number of rose and purple-blotched hybrids, and any such change is bound to be useful. A large chocolate-coloured blotch is on the labellum and each of the sepals.

ODONTOGLOSSUM DEMETRIA.—A very attractive hybrid has been flowered by Mr. E. H. Davidson, Twyford, Berks. The parents are *Kegeljani* (*Polyxanthum*) and *Rolfæ*, the former having a great influence on the shape of the flower. Although the ground colour may be said to be yellow, there is much suffusion of rose, chiefly on the back of the segments. The sepals have a large brownish-red blotch near their centre, and a few smaller ones near the column. The labellum is broad at the apex, toothed at the sides, and has a large shining crimson blotch.

ODONTIODA EDITH.—Interest is now passing from the primary to the secondary *Odontiodas*. By crossing *chelseaensis* (*vulcanica* × *crispum*) with *Bradshawiæ* (*Nœzliana* × *crispum*) Mr. Wm. Bolton, of Warrington, has combined the characters of the two *Cochlioda* species, and has produced what one might expect from the use of *Cochlioda miniata*, which is a natural hybrid between *C. vulcanica* and *C. Nœzliana*. The flower is rose-red in colour, of good size, and rendered attractive by the well-developed yellow crest on the labellum.

ODONTOGLOSSUM TRIUMPHOSUM.—As the specific names almost indicate, the parents are *triumphans* and *cirrhosum*. The whole flower is bright golden-yellow, with a few brown blotches. Messrs. McBean, of Cooks-bridge, by raising this plant, have added one more hybrid to the list of primary crosses.

ODONTIODA DALTONENSIS.—An elegant hybrid between *Od. Phœbe* (*cirrhosum* × *crispum*), and *C. Nœzliana*. Flower three inches in width, of solid scarlet-red colour. An improvement on *keighleyensis* (*cirrhosum* × *C. Nœzliana*), the better form being due to the *crispum* influence. Raised by Mr. J. H. Craven, Beeches, Keighley.

THE HEIGHTSIDE COLLECTION.

AN interesting collection of Orchids has been formed at "Heightside," Newchurch, near Manchester, the residence of H. H. Bolton, Esq. The picturesque garden has much of the old style about it, and many a favoured corner shelters some example of the bygone days. Upon a seat are carved the words:—

How could such sweet and happy hours
Be reckoned but with herbs and flowers.

The glasshouses are well-arranged, in excellent structural condition, and eminently suitable for Orchid culture. A floriferous variety of *Dendrobium fimbriatum* with pretty, golden flowers having only a trace of red-brown on the lip is quite a charm to the house. The Heightside variety of *D. nobile* is of large size and well worthy of cultivation. *D. nobile album* and an extensive selection of *Dendrobium* hybrids are also cultivated. *Lælia anceps* and its many varieties are grown in suspended pans, and when so cultivated well-ripened bulbs are produced. *Cœlogyne Massangeana*, often spoken of as the Necklace Orchid, and *C. fuliginosa* may also be seen, as well as a large batch of *Calanthes*.

In the *Cattleya* house there is a varied assortment of species and hybrids. A large specimen of *C. Schröderæ* is quite a picture, with two spikes, each carrying five large flowers. Other plants of the same species look equally promising. *C. Lawrenceana* is quite at home in this house and makes vigorous bulbs with good flower-sheaths. *Cymbidium insigne* is well cultivated.

The *Cypripedium* house has been gay all through the winter, many of the plants have still a good show of flower. The collection includes *Selenipediums*, many of the best present-day hybrids, and some of the good species. Mention should be made of *aureum*, *Hyeaenum*, *Lowii*, *Victoria Mariæ*, and the interesting *caudatum*.

In the *Odontoglossum* house *Oncidium macranthum* and *lamelligerum* have produced several very long flower spikes, which are trained up to the roof and give a picturesque



Th. PAUWELS



Th. PAUWELS

Cymbidium Pauwelsii ('insigne $\times$ Lowianum'), first raised by Messrs. Th. Pauwels & Co., Meirelbeke, Ghent, Belgium.
The Illustrations show a group of plants and a single specimen flowering in their establishment.

appearance to the house. Additional colour is given by yellow flowering *Oncidiums* and the red *Sophronitis grandiflora*. *Odontoglossums* are particularly happy, and as the house is some 900 feet above the sea level the atmosphere is fresh and buoyant. A very handsome variety, known as King of Sparta, has two spikes on the same bulb, and carrying a total of 20 well developed flowers heavily blotched with purple. *O. crispum* Black Prince, *O. excellens* Richd. Ashworth, and

O. Halli xanthoglossum carrying a spike of 19 good flowers are a few of the noteworthy plants. *O. citrosmum* proves of much interest.

Lycaste Skinneri is represented by a large and distinctly coloured variety, and besides a varied selection of *Masdevallias* there is an extensive collection of various cool and warm house Orchids. The very healthy condition of all the plants speaks well for the atmosphere and Mr. Eastwood, who is in charge of the practical part.

GHENT SHOW.

THE Ghent Exhibition was opened by Their Majesties the King and Queen of Belgium, accompanied by Prince Leopold, on Saturday, April 26th, and great enthusiasm prevailed among the numerous exhibitors and the vast crowd which thronged the Exhibition Buildings. The following report includes the principal Orchid groups.

Mons. Firmin Lambeau was awarded the Gold Medal presented by the King of Belgium for a wonderful display of choice Orchids most tastefully arranged. The noteworthy plants included *Miltonia vexillaria* G. D. Owen; *Miltonia Hyeana* of splendid form; *Lælio-Cattleya Golden Glory*, with golden-yellow segments; *L.-C. Firminii* "Ville de Gand," a richly coloured variety; *Brasso-Cattleya Ajax*; a host of elegant *Cattleya* and *Odontoglossum* hybrids; albino varieties of almost all the *Cattleya* species; a choice selection of *Odontiodas*; and many other novelties.

M. Lambeau also received Silver-gilt Medals for *Cymbidium Lambeauianum*; *Lælio-Cattleya Firminii* "Ville de Gand"; *Odontoglossum crispum* "Reine Elisabeth," a magnificent white flower of large proportions with a bright reddish-purple blotch in the centre of each segment; *Od. Ville de Gand*, a good hybrid of the amabile section; *Cœlogyne pandurata*; *Cymbidium Humblotii*; *Odontoglossum luteo-purpureum*; *Eulophiella Elisabethæ*, a wonderful

plant with six large spikes of flower; and for an albino seedling *Cattleya* obtained by crossing *C. intermedia alba* with *C. Schröderæ alba*, the 14 flowers all being pure white. *Odontioda Coronation*, one of the marvels of the show, was also awarded a Silver-gilt Medal.

Mons. Ch. Dietrich, Auderghem, was awarded the "Œuvre d'Art," value 200 francs, presented by M. L. Tillier, of Paris, for a very artistic exhibit of Orchids, containing many excellent forms of *Cattleya Mendelii*, good varieties of *C. Empress Frederick*, *Cymbidium insigne*, a grand specimen *Brasso-Cattleya Digbyano-Schröderæ*, many *Miltonias*, some excellent blotched *Odontoglossums*, *Phaius Norman*, and a varied selection of all the well-known species and hybrids.

Count Joseph de Hemptinne, St. Denis, received the 1st Prize, an Œuvre d'Art, value 150 francs, for a grand display of *Odontoglossum crispum*, many of the varieties being specially good. There were several grand *Cattleyas*, *Odontiodas*, *Odontoglossum Dora*, *Brasso-Cattleya Orpheus*, an excellent pure white flower of good substance, and a richly coloured *Brasso-Cattleya Vilmoriniana*.

Messrs. Th. Pauwels, Meirelbeke, were awarded the "Œuvre d'Art," presented by Mons. F. Lambeau, for an extensive and very beautiful exhibit of *Cymbidium Pauwelsii*, all the specimens being specially well flowered. Numerous *Odontoglossums*, both species and

hybrids, a large selection of *Cattleyas*, *Lælias*, and *Brassavola* hybrids, as well as many beautiful *Miltonias* assisted in making one of the best groups in the exhibition.

Mons. Jules Hye de Crom, Ghent, was awarded the "Prix du Val Duchesse," presented by M. Ch. Dietrich, for an extensive and very attractive group of *Miltonia vexillaria*. The centre of the exhibit included M. v. G. D. Owen, M. v. alba, and other distinct varieties and hybrids of *Miltonia*; *Odontoglossum crispum* "Oakfield Sunrise," with the petals richly coloured purple-red, and shown in great perfection; *Cattleya Lueddemanniana* alba "Empress," with two well-developed flowers; and *C. citrina maxima*, an immense flower. An interesting plant was a hybrid between the peloriate form of *Cattleya intermedia* known as *Aquinii*, and *Cattleya Aclandiae*; the pelorism is continued in the hybrid with the result that the flower has the petals creamy-yellow in the central area and bright purple at the ends, thus giving the appearance of three lips; the sepals are spotted with purple.

Messrs. Duchesne and Lanthoine, Audergem, staged a fine exhibit of *Odontoglossum crispum*. 150 specimen plants were included, many being of special merit. A pretty effect was made by the inclusion of the bright red *Masdevallia Veitchii grandiflora*, and *M. Harryana*. Gold Medal.

Mons. Ch. Vuylsteke, Loochristi, Ghent, received an "Œuvre d'Art," value 500 francs, for a most beautiful exhibit. The noteworthy plants included *Odontoglossum eximium* "Duc de Brabant," a fine flower with broad segments heavily blotched with reddish-purple; *Od. gandavense* "Parsifal," heavily blotched; *Od. L'Aiglon giganteum*, an immense flower; *Od. crispum* "Glorie de Belgique," a very round white flower of great size and having dark blotches on the centre of the segments; and *Od. Saturnus*, a distinct hybrid with purple-blue colour. The *Odontiodas* included *Vuylstekeæ floribunda*, with a branched spike of at least 230 blooms; *O. Vuylstekeæ* "Roi de Belges," dark rose heavily blotched with red; *O. striata*, with

the scarlet-red colour arranged in dotted lines; and *O. Blushing Bride*, a remarkable hybrid clearly showing the influence of *Cochlioda Nœzliana* in construction, but not in colour, the flower being white with a suffusion of rose over the whole surface.

Mons. Arthur Meusser, Woluwe St. Lambert, was awarded a Gold Medal for a superb exhibit of *Odontoglossum crispum* which had been collected by him in the best district. The group contained 150 specimen plants, every one of which carried a full natural spike, and many magnificent varieties were included.

Messrs. Stuart Low and Co., Enfield, received an "Œuvre d'Art," value 250 francs, for an extensive group containing the interesting *Pleurothallis Birchenalli*, a fine form of *Oncidium lamelligerum*, *Dendrobium nobile album*, *Cymbidium Lowgrinum*, the blue flowering *Vanda cœrulescens*, *C. Mossiæ*, a grand specimen with over 30 large flowers, *C. M. Wageneri*, *C. M. Reineckiana*, and several good forms of *C. Mendelii*, one of which had pure white sepals and petals and slight purple tint on the labellum. Numerous varieties of *Lælio-Cattleyas*, several excellent forms of *Miltonia vexillaria*, and many other attractive species and hybrids made a very attractive exhibit.

Messrs. Charlesworth and Co., Haywards Heath, were awarded an "Œuvre d'Art," value 250 francs, for a most interesting group, in which were the rare *Cymbidium Humblotii*, *Oncidium Claesianum* with a spike of over 60 flowers, *Maxillaria Sanderiana*, *Odontocidium Fowlerianum*, *Phaius simulans*, several varieties of *P. Norman*, the elegant *Eulophiella Elisabethæ*, *Miltonia Hyeana*, some very fine examples of their numerous hybrids, of which *Odontiodas* and *Odontoglossums* were specially noteworthy, and well flowered specimens of *Oncidium macranthum*.

Mons. Ch. Maillard, St. Andre lez-Lille, France, received a Gold Medal, value 150 francs, for an interesting exhibit of *Odontoglossum* hybrids. The best were:—*Jasper*, *harvengtense*, *Doris*, and *hibernicum*. *Odontioda Bradshawiæ*, *O. Charlesworthii*, and several others were well-flowered, and a

good dark form of *Odontoglossum Edwardii* added colour to the group.

Messrs. A. and G. Janseen, Merxem, staged a pretty group for which a Gold Medal, value 100 francs, was granted. The most interesting plants being *Cattleya intermedia alba*; *C. Schröderæ*, of excellent quality; *C. Mendelii*, with a rich, dark lip; *Cypripedium Maudiaë*, *C. Lawrenceanum*, *Odontoglossum harvengtense*, and other blotched hybrids, various bright-yellow *Oncidiums*, and in the centre of the group a grand specimen *Miltonia vexillaria*.

Mons. René Behiels, St. Nicolas, Waes, exhibited in a class for 50 Orchids, and received a Gold Medal, value 100 francs. The plants, which were mostly grown in baskets and displayed considerable vigour, included some very choice forms of *Cattleya Schröderæ*, *Cypripedium Maudiaë*, *Odontoglossum Ethelreda*, and distinct varieties of other well-known species.

Dr. Ballion, Ghent, received a Gold Medal, value 100 francs, for a good group in which were many excellent hybrids, including *Lælio-Cattleya Hyeana*, *Odontioda Charlesworthii*, *O. Devossiana*, *O. Alma*, *O. Cooksoniæ*, *Brasso-Cattleya Mariæ*, *Cymbidium Pauwelsii*, and many *Cypripediums*. *Cattleya Pynærtii* and *C. Schröderæ* "Prince Leopold" were also much admired.

Messrs. Vacherot et Lecoufle, Boissy St. Leger, France, were awarded a Gold Medal, value 50 francs, for an attractive exhibit of 20 specimen plants of *Lælio-Cattleya Lucia*; and in the class for the most beautiful *Lælio-Cattleya* they received a Silver-gilt Medal for a fine variety of *L.-C. Lucia*.

Mons. E. Praet, Mt.-St. Amand, received an "Œuvre d'Art," value 150 francs, for an excellent collection of various Orchids, which included *Miltonia Hyeana* in variety, some beautiful examples of *Cattleya Schröderæ*, good forms of *Odontoglossum crispum*, and interesting hybrids. The same exhibitor also received a Gold Medal, value 50 francs, for a collection of 30 Orchids, and a Silver-gilt Medal for a selection of Indian Orchids.

(To be continued.)

ROYAL HORTICULTURAL SOCIETY.

April 1st, 1913.

MEMBERS of the Orchid Committee present: Sir Harry J. Veitch (in the chair), Messrs. Jas O'Brien (hon. sec.), Gurney Wilson, R. A. Rolfe, J. S. Moss, J. Wilson Potter, F. Sander, A. McBean, W. Waters Butler, F. M. Ogilvie, W. Cobb, J. Charlesworth, J. Cypher, W. H. Hatcher, H. G. Alexander, W. P. Bound, A. Dye, W. H. White, C. J. Lucas, S. Flory, F. Peeters, W. Bolton, F. J. Hanbury, and de B. Crawshay.

Messrs. Armstrong and Brown, Tunbridge Wells, were awarded a Silver Flora Medal for an effective group of meritorious Orchids. *Dendrobiums*, *Lælio-Cattleyas* in great variety, and *Zygopetalum Armstrongiæ* were in good form.

Messrs. Sander and Sons, St. Albans, secured a Silver Banksian Medal for a large group of *Cattleyas*, the varieties of *Schröderæ* being very fine. *Odontoglossums* and *Cypripediums* were well represented. An interesting plant was *Cymbidium l'Ansonii*, received from Annam.

H. T. Pitt, Esq., Rosslyn, Stamford Hill, was awarded a Silver Flora Medal for a very pretty group containing *Epidendrum Wallisii*, *E. Stamfordianum*, good *Cattleyas*, and various hybrids raised at Rosslyn.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), was awarded a Silver Banksian Medal for a fine collection of *Odontiodas*, *Odontoglossum* hybrids, and other good Orchids.

Mr. S. Flory, Twickenham, was awarded a Silver Banksian Medal for a good group of *Cattleya Schröderæ*, several Orchids of botanical interest, and rare species.

Messrs. Stuart Low and Co., Bush Hill Park, secured a Silver Banksian Medal for an interesting exhibit of *Dendrobiums*, those of the yellow section being specially noticeable. Various yellow-flowering *Oncidiums* were also shown.

Messrs. Hassall and Co., Southgate, were awarded a Bronze Medal for a choice selection, including *Cattleya Luddemanniana*

Stanleyi, Lælio-Cattleyas and Brassavola hybrids.

Messrs. J. and A. McBean, Cooksbridge, exhibited some very fine examples of Cattleya Schröderæ, one having a pseudo-bulb six inches in circumference. The new Cattleya Brenda, with pure white flowers, Odontoglossum and other hybrids were also shown.

Messrs. J. Veitch and Sons, Chelsea, showed Lælio-Cattleya Frederick Boyle Langley variety, a pretty blush-white form.

W. Waters Butler, Esq., Southfield, Birmingham, exhibited Cattleya Tityus Southfield variety, a beautiful form; and Lælio-Cattleya Dominiana Southfield variety, of excellent colour.

Col. J. Rutherford, Beardwood, Blackburn, sent a good plant of the rare Cymbidium Parishii.

E. H. Davidson, Esq., Orchid Dene, Twyford, showed Cattleya Schröderæ Davidson's variety, a large flower of delicate colouring.

J. S. Moss, Esq., Bishop's Waltham, exhibited Odontioda Bradshawia ardens, a very good variety, with a spike of 21 flowers.

Sir Jeremiah Colman, Bart., Gatton Park, exhibited Lissochilus speciosus, with bright yellow flowers, and Odontioda Bradshawia marginata.

Pantia Ralli, Esq., Ashted Park, Surrey, showed a good specimen of Odontioda Charlesworthii and O. Cooksonia Ralli's variety.

de Barri Crawshay, Esq., Rosefield, Sevenoaks, showed Odontoglossum Dirce (harvengtense $\times$ ardentissimum), a handsome flower with large blotches on a white ground.

C. J. Phillips, Esq., The Glebe, Sevenoaks, exhibited Odontioda Royal Gem, of excellent shape, and O. Valeria Glebe variety, with dark blotches and rose tips.

F. Menteith Ogilvie, Esq., The Shrubbery, Oxford, showed Odontoglossum Ossulstonii Shrubbery variety, carrying a seed pot and a spike of 32 large flowers.

AWARDS.

FIRST-CLASS CERTIFICATES.

Brasso-Cattleya heatonensis "Canary" (B. Digbyana $\times$ C. Hardyana), from Lieut.-Col.

Sir George Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander).—One of the most beautiful of the yellow section. Flowers large, canary-yellow, with a faint lilac shade. The lip prettily fringed. The plant had six flowers.

Cypripedium Roundhead (nitens $\times$ Earl of Tankerville), from Lieut.-Col. Sir George Holford.—A fine hybrid, dorsal having white upper part, with dark chocolate spotting on the lower portion. The petals extremely broad and shaped as in villosum.

Lælio-Cattleya Dominiana Southfield variety (L. purpurata $\times$ C. Dowiana), from W. Waters Butler, Esq., Southfield, Birmingham.—One of the finest forms of this well-known hybrid, the lip being particularly dark.

Cymbidium Humblotii, from Messrs. Charlesworth and Co., Haywards Heath.—A very interesting species from Madagascar. The large branching spike carried no less than 130 flowers, which are about 2 inches across, pale green with black markings on the lip.

Odontoglossum eximium Warnham Court variety (ardentissimum $\times$ crispum Luciani), from C. J. Lucas, Esq., Warnham Court, Horsham.—Flowers extremely round, very heavily blotched with reddish-purple. In every way a fine hybrid.

AWARDS OF MERIT.

Odontioda Cooksonia Ralli's variety (O. ardentissimum $\times$ C. Nœzliana), from Pantia Ralli, Esq., Ashted Park (gr. Mr. S. Farnes).—A good variety carrying a spike of 18 bright red flowers, the distinguishing feature being the white apex to the lip.

Odontioda Keighleyensis ignifera (O. cirrhosum $\times$ C. Nœzliana), from Messrs. J. and A. McBean, Cooksbridge.—A great improvement on former varieties. Colour brilliant scarlet.

Cattleya intertexta "Julietta" (Mossia alba $\times$ Warneri alba), from Mons. Firmin Lambeau, Brussels.—A very pleasing flower, pure white, the centre of the lip and throat chrome-yellow.

CULTURAL COMMENDATION

To Messrs. Charlesworth and Co., for a grand specimen of Cymbidium Humblotii.

April 15th, 1913.

MEMBERS of the Orchid Committee present :

J. Gurney Fowler, Esq. (in the chair), Mr. J. O'Brien (hon. sec.), Sir Jeremiah Colman, Bart., Sir Harry J. Veitch, Messrs. Gurney Wilson, J. Wilson Potter, W. Thompson, F. Sander, F. J. Hanbury, W. Cobb, F. M. Ogilvie, A. McBean, T. Armstrong, J. Charlesworth, W. H. Hatcher, J. E. Shill, H. G. Alexander, W. P. Bound, A. Dye, W. H. White, C. J. Lucas, S. W. Flory, W. Bolton, C. Cookson, J. S. Moss, and de Barri Crawshay.

Messrs. Charlesworth and Co., Haywards Heath, were awarded a Silver Flora Medal for a good group containing *Phalænopsis Aphrodite*, *Cattleya Tityus*, *Miltoniodes Ajax*, *Epi-Lælia macrocinnabarina*, *Odontioda* and *Odontoglossum* hybrids.

Messrs. Sander and Sons, St. Albans, were awarded a Silver Flora Medal for an interesting exhibit in which were distinct varieties of *Cattleya Schröderæ*, *Lælio-Cattleya Trimyra* with canary-yellow flowers, many *Odontoglossum* hybrids, and the new *Maxillaria Fletcheriana*.

E. H. Davidson, Esq., Twyford, received a Silver Flora Medal for an attractive group, the plants of special merit being *Cattleya Robert de Wavrin*, *C. Schröderæ*, *Brassavola*, and *Odontoglossum* hybrids, and the elegant *Miltonia vexillaria* "Empress Augusta Victoria."

Mr. Sidney Flory, Amyand Park Road, Twickenham, was awarded a Silver Flora Medal for an extensive group, containing *Chysis bractescens*, *Cattleya intermedia alba*, the rare *Coelogyne Micholitzii*, and *Cymbidium eburneum*.

Messrs. Hassall and Co., Southgate, were awarded a Silver Banksian Medal for an attractive exhibit of *Trichopilia Backhousiana*, a very pleasing flower, pure white, and deliciously fragrant. *Cymbidium eburneum*, *Lowianum*, and various *Miltonias* were also shown.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), secured a Silver Banksian Medal for a good exhibit of *Cattleya intermedia nivea*, *Odontioda Devossiana*, the

brightly coloured *Masdevallia ignea*, and *Odontoglossum crispum* President Fallières.

Mr. C. F. Waters, Balcombe, was awarded a Bronze Banksian Medal for a group of *Lycaste Skinneri*, containing several distinct varieties. *Cattleyas* and *Odontoglossums* were also shown.

Lieut.-Col. Sir George Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), exhibited *Odontioda Bradshawiæ* Holford's variety, a very large and richly coloured form ; and *Cattleya Schröderæ* The Baron, a well-known variety.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford, showed *Brasso-Lælio-Cattleya Triune*, an elegant flower of good shape.

William Thompson, Esq., Walton Grange, Stone, exhibited *Odontoglossum crispum* J. Howes, a richly blotched form ; *O. Ilene* and *O. Princess Mary*, elegant flowers of unknown parentage ; and *Odontioda* William Thompson, a handsome variety.

F. M. Ogilvie, Esq., The Shrubbery, Oxford, exhibited *Miltonia Bleuana rosea gigantea*, a magnificent form ; and *Odontoglossum Lambeauianum*, with a many-flowered spike.

W. R. Lee, Esq., Plumpton Hall, Heywood, showed *Odontioda Evadne*, a large flower, beautifully coloured, having a red blotch in the centre of the segments ; and *O. Bradshawiæ Hestia*, a distinct variety, reddish colour, the margin tinged with lilac, and a red blotch in front of the crest.

J. Gurney Fowler, Esq., Glebelands, South Woodford exhibited *Cattleya Robert de Wavrin* "Fowler's variety," a large flower, of excellent colour.

Pantia Ralli, Esq., Ashted Park, Surrey (gr. Mr. Farnes), showed *Lælio-Cattleya Dominiana Ralli's* variety, a very good form, of excellent colour.

Walter Cobb, Esq., Normanhurst, Rusper, sent *Odontioda Bradshawiæ* Cobb's variety, a pleasing form.

Alwyn Harrison, Esq., Oneglia, Italy, showed *Dendrobium crassinode*, with numerous flowers ; and *D. nobile* Harrison's variety, a very large flower of excellent colour.

Messrs. J. and A. McBean, Cooksbridge,

Sussex, exhibited *Miltonia vexillaria* G. D. Owen, *Lælio-Cattleya Helius*, of yellow colour, and *L.-C. Trimyra*.

G. Evans, Esq., Shenstone, Crayford, Kent (gr. Mr. Povey), showed *Brasso-Cattleya Digbyano-Mendelii*, with numerous flowers.

AWARDS.

FIRST-CLASS CERTIFICATES.

Brassocattlælia King Emperor (*L.-C. callistoglossa* × *B.-C. Digbyano-Mossiae*), from W. R. Lee, Esq., Plumpton Hall, Heywood.—A magnificent flower measuring 8 inches across the petals and 9 inches across the sepals. Colour purple-mauve, the lip lighter at the margin and fringed.

Odontoglossum Pescatorei Lady Holford, from Lieut.-Col. Sir George Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander).—One of the finest forms of the species. Flowers over 3½ inches across, white, with slight rose tint on the sepals.

Lælio-Cattleya luminosa Holford's variety (*L. tenebrosa* Walton Grange × *C. Dowiana aurea*), from Lieut.-Col. Sir George Holford, K.C.V.O.—Sepals and petals rich canary-yellow. Lip ruby-purple with darker veining. A very distinct and beautiful hybrid.

AWARDS OF MERIT.

Maxillaria Fletcheriana, from Messrs. Sander and Sons, St. Albans.—A very attractive new species from Peru. In some respects the habit of growth and flower resembles *M. grandiflora*. The erect fleshy flower is creamy-white, veined with rose-red. The lip yellowish with purple markings.

Odontoglossum Mrs. Thompson (parentage unknown), from William Thompson, Esq., Walton Grange, Stone.—A very beautiful hybrid, the fringed segments heavily blotched with purple.

CULTURAL COMMENDATION

To Mr. Balmforth, Orchid grower to F. M. Ogilvie, Esq., for a good plant of an *Odontoglossum Edwardii* hybrid carrying a spike of 130 purple blotched flowers.

April 29th, 1913.

Messrs. Cypher and Sons, Cheltenham, were awarded a Silver Flora Medal for a good group.

Messrs. Hassall and Co., Southgate, secured a Silver Banksian Medal for an attractive exhibit.

Mr. Jensen, Haywards Heath, received a Silver Banksian Medal for some elegant Orchids.

Mr. C. F. Waters, Balcombe, Sussex, was awarded a Silver Banksian Medal for a neat group.

Sir Trevor Lawrence, Bart., exhibited two good varieties of *Brassocattlælia Triune*.

Pantia Ralli, Esq. (gr. Mr. Farnes), showed *Odontioda Vuylstekeæ*, a rose-red flower of excellent quality; *Od. Aireworth*, of rich colour; and *Od. Doris*, a dark variety.

Lieut.-Col. Sir George Holford (gr. Mr. H. G. Alexander), exhibited *Cattleya Prince Olaf*, with a spike of six large flowers; *C. Enid*, also carrying a spike of six flowers; and *C. Schröderæ Luna*, a beautiful variety with an orange throat.

George Bird, Esq., Manor House, West Wickham, showed *Odontioda Kitty*, a pretty hybrid with bright crimson-red flowers.

H. S. Goodson, Esq., Putney (gr. Mr. Day), showed *Cattleya Mendelii* "Blanche," a light form in the way of *Quorndon House* var.; *Od. illustre Radium*; and *Od. Wilckeanum*, a very fine form.

Messrs. J. Veitch and Sons showed *Brassocattlælia Gerald* (*B.-C. Digbyano-purpurata* × *L.-C. bleckleyensis*).

W. S. Page, Esq., Hutton, Brentwood, exhibited three specimen *Cattleya Mossiae*, with an abundance of flower.

Messrs. Sander and Sons, staged *Lælio-Cattleya Fred. Boyle* and *Cattleya Mendelii Dreadnought*, a dark form.

AWARD OF MERIT.

Odontoglossum amabile "Zeus," from Lieut.-Col. Sir George Holford. A beautiful variety with white flowers marked on the centre of the segments with purple-red.

Cultural Commendation to Mr. W. H. White, for a good example of *Epidendrum leucochilum*.

MANCHESTER ORCHID SOCIETY.

March 20th, 1913.

MEMBERS of the Committee present: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, Dr. Hartley, F. A. Hindley, A. J. Keeling, D. McLeod, C. Parker, H. Thorp, Z. A. Ward, A. Warburton, and H. Arthur (secretary).

A Gold Medal was awarded to Z. A. Ward, Esq., Northenden, for an excellent group. A Large Silver Medal was granted to Col. J. Rutherford, M.P., Blackburn.

A Silver-gilt Medal was awarded to R. Ashworth, Esq., Newchurch, and a Silver Medal to F. A. Hindley, Esq., Bradford.

A Bronze Medal was awarded to Rev. J. Crombleholme, Clayton-le-Moors, and a Special Vote of Thanks to O. O. Wrigley, Esq.

Mr. W. Shackleton, Great Horton, and Mr. J. Birchenall, Alderley Edge, also exhibited.

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontioda daltonensis (Od. Phœbe × C. Nœzliana). Good flower, 3 inches across, even colour, from J. H. Craven, Esq.

Odontoglossum Rossii "Ward's var.," large well-set flower, $3\frac{1}{4}$ inches across, rosy form, from Z. A. Ward, Esq.

Oncidioda Cooksoniæ "Ashland's var.," (On. macranthum × C. Nœzliana), flowers of the macranthum shape, bronzy-scarlet in colour, from R. Ashworth, Esq.

AWARDS OF MERIT.

Odontoglossum tripudians "Ward's var.," *crispum* Snowball, and *Miltonia vexillaria* "Cringewood var.," all from Z. A. Ward, Esq.

Odontoglossum triumphans "Hesperidas," *Cattleya Trianæ* "Ida," and *Od. illustrissimum*, from R. Ashworth, Esq.

April 3rd, 1913.

MEMBERS of the Committee present: Messrs. Z. A. Ward (in the chair), J. Cypher, J. Evans, A. Hanmer, A. J. Keeling, J. Lupton, D. McLeod, W. Morgan, C. Parker, Wm. Thompson, H. Thorp, A. Warburton, and H. Arthur (secretary).

A Gold Medal was awarded to Z. A. Ward, Esq., Northenden, for an excellent group.

Silver-gilt medals were granted to A. Warburton, Esq., Haslingden; Samuel Gratrix, Esq., Whalley Range, who also obtained a Silver Medal for *Odontoglossum crispum* Samuel Gratrix; Wm. Thompson, Esq., Walton Grange; and Col. J. Rutherford, M.P., Blackburn.

A large Silver Medal was awarded to R. Ashworth, Esq., Newchurch; and Silver Medals to W. R. Lee, Esq., Heywood, and Messrs. J. Cypher and Sons, Cheltenham.

Bronze Medals were granted to Rev. J. Crombleholme, Clayton-le-Moors, and Messrs. A. J. Keeling and Sons, Bradford.

H. Arthur, Esq., Blackburn; Mr. W. Shackleton, Great Horton; and Messrs. Armstrong and Brown, Tunbridge Wells, also exhibited.

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontoglossum eximium Ilene and Od. Princess Mary, of almost solid colour, from Wm. Thompson, Esq.

Brasso-Cattleya Cliftonii magnifica, magnificent flower of perfect shape, from W. R. Lee, Esq.

Odontoglossum Harlequin West Point variety, flower brilliantly marked, from Samuel Gratrix, Esq.

Odontoglossum amabile Fairlight, flower very large, fully 4 inches across, from Col. J. Rutherford, M.P.

AWARDS OF MERIT.

Cattleya Gratrixæ, *Lycaste* Fairy Footsteps, B.C. Md. Chas Maron West Point variety, and *Odontoglossum* Royal Purple, all from S. Gratrix, Esq.

Odontoglossum Walton Gem, *Od. eximium* Violetta, *Od. eximium* Wm. Stevens, *Od. amabile* His Majesty, and *Od. amabile* Dorothy, all from Wm. Thompson, Esq.

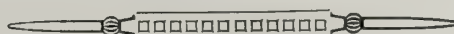
Lælio-Cattleya Lady Blanche and *Odontoglossum* Yellow Prince, both from J. Rutherford, Esq.

Odontoglossum Purple Queen, from Z. A. Ward, Esq.

Odontoglossum Thompsonianum Vine House variety, from A. Warburton, Esq.



JUNE, 1913.



NOTES.

ROYAL HORTICULTURAL SOCIETY.—The Society's Summer Show will be held at Holland House, Kensington, July 1st, 2nd and 3rd. The Orchid Committee will assemble at 10.30 a.m. The Exhibition will be open to Fellows at 12 noon, and to the public at 2 p.m.



THEFT OF POLLEN.—Valuable pollen still attracts the hands of evildoers. The promising *Miltonia* seedling between *vexillaria* G. D. Owen and *vexillaria chelseaensis*, exhibited by Messrs. Charlesworth at the recent Ghent Show, was the subject of attack. On the second day of the Exhibition it was discovered that someone, by means of a knife, had removed the flower spike from this plant, and thereby secured the pollen.



MANCHESTER ORCHID SOCIETY.—At the Annual Meeting, May 1st, 1913, Mr. R. Ashworth was appointed President and Treasurer of the Society, with the Rev. J. Crombleholme, Chairman, Mr. Z. A. Ward, Vice-Chairman, Mr. H. Thorp, Hon. Auditor, and Mr. H. Arthur, Secretary. A Committee was appointed, and the Prizes were presented to the successful exhibitors as follows:—S. Gratrix's Cup, E. H. Davidson's Cup, and the Cypher Gold Medal to Mr. Z. A. Ward; Z. A. Ward's Gold Medal to Col. J. Rutherford, M.P.; O. O. Wrigley's Gold Medal to Mr. A. Warburton; Sander Prizes to Mr.

Lupton (gr. to Col. Rutherford), Mr. Marshall (gr. to Rev. J. Crombleholme), equal Firsts; and Mr. Weatherby (gr. to Mr. Z. A. Ward), Third; the Society's Gold Medal (for amateurs without gardener) to Mr. H. Arthur, and Silver-gilt Medal to Mr. F. A. Hindley; a Gold Medal and Prize to gardener (given by a member of the Society) was presented to Mr. R. Ashworth for meritorious exhibits during the session.

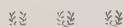


ODONTIODA VUYLSTEKEÆ FLORIBUNDA.—At the Ghent Show, April last, Messrs. Th. Pauwels and Co. exhibited *Odontioda Vuystekeæ floribunda* carrying a pyramidal branching spike of no less than 232 flowers. Although some experts thought the plant may have arisen from a second crossing of *Vuystekeæ* with *Pescatorei*, and thus increased the number of blooms, we doubt if such a large number on one spike has been previously recorded. Specimens such as these have a truly beautiful and decorative effect.



GIFT OF ORCHIDS.—The residence and conservatories of Mrs. Geo. A. Joslyn, Davenport St., Omaha, Neb., U.S.A., were badly damaged by the tornado, and many of the plants suffered from exposure to the cold weather. As the greenhouses will probably not be rebuilt, Mrs. Joslyn has offered her valuable collection of Orchids to the City

Park of Omaha, together with the sum of £200 for their care. The city commission has been asked to contribute £600 for the erection of suitable houses in which to cultivate the plants.



LÆLIA CHAMONICENSIS. — An easily grown plant, and therefore one suitable for amateurs, is *Lælia chamonicensis* (*purpurata* × *Jongheana*), the free growing nature of both parents giving the resulting hybrid much vigour. Mr. Eustace Clark, of Evershot, Dorset, has recently flowered two distinct varieties, one having the lip rich crimson-purple and the other mauve-pink. Both forms measure about seven inches across the petals and are very useful additions to the amateur's collection.



CYPRIPEDIUMS AT ST. LOUIS, U.S.A.—One of the oldest and most extensive collections of *Cypripediums* in the United States is that of Mr. D. S. Brown, Brown Hurst, Kirkwood, St. Louis. Our illustration shows this amateur collector in one of his numerous Orchid houses, which are filled with *Cattleyas*, *Lælio-Cattleyas*, *Vanda cœruleas*, *Lælia anceps*, and *Cymbidiums*. As previously mentioned the *Cypripediums* are the chief attraction, and at the time of taking the photograph the following species and hybrids, many of which have been raised at Brown Hurst, were in flower:—*Maudiae*, *Leeanum Clinkaberryanum*, *Fairrieanum*, *Niobe*, *Dido*, *bingleyense*, *Mad. Opoix*, *Arthurianum*, *Sallieri magnificum*, *nitens* G. S. Ball's var., *Euryades splendens* and *Charlesworth's* var., *Lawrenceanum Hyeaenum*, *aureums virginale*, *Olympia*, *Surprise*, *Hyeaenum*, *album*, and *Ædipe*, and the following varieties of *insigne*:—*Sanderæ*, *Sanderianum*, *Laura Kimball*, *Mrs. G. B. Wilson*, *Luciani*, *Ernestii*, *Chantini Lindeni*, *Mrs. D. S. Brown*, *Harefield Hall*, and *Bonhofianum*. In addition to a yellow



D. S. Brown, Esq., in one of his Orchid Houses.

variety of *bellatulum*, there were several varieties of *Actæus* and other unnamed seedlings.



IMPORTED SEED PODS.—During my travels in search of Orchids at the foot of the Himalayas in such districts as the Doors and the Terrai, and also in Assam and Sikkim, the habitat of all our tropical Orchids, I have observed the remarkable development of seed-pods on the various species of Orchids, and it struck me at the time that these could be collected and exported to England in hermetically sealed tins, or bottles, without the risk that invariably accompanies the plant itself. The fact that the majority of Orchids imported into England from India arrive in bad condition, due either to atmospheric conditions whilst travelling, or inefficient packing, and in some cases are totally destroyed, must naturally be a big loss to importers, whereas the importation of seed-pods, packed in the manner noted above, would, no doubt, be more appreciated by the importers who make it a practice of raising Orchids from seed. On the other hand, the cost of the seed-pods and freight (conveyance by parcel post) would be comparatively small. As an experimental measure I intend during my next travels to

collect a quantity of various species and send them to England in sealed bottles and labelled according to the plant from which I take them. It is possible that in the jungle, where such a number of varieties of different species grow together in a small area, and bloom more or less at the same time, a certain amount of natural hybridisation takes place, with the result that a few hybrids may be forthcoming under proper cultivation. Should any readers of the ORCHID WORLD wish to put themselves in communication with me in regard to the importation of seed-pods, I shall be only too pleased to meet their wants in this line whilst travelling on my own business.—*Chas. Power, Orchid Villa, Barrackpore, Calcutta.*



DENDROBIUM WARDIANUM.—This well-known Orchid, named after Dr. Ward, of Southampton, was originally introduced from Assam, but during later years a stouter Burmese form has been received under the name *D. Wardianum Lowii*. The variety *candidum* was applied by Reichenbach to a form which appeared in Mr. E. G. Wrigley's collection, in the year 1876. In this variety the violet-purple had disappeared from the tips of the segments leaving a white flower, although the two eye-like brown spots on the lip still remained. The variety *album* first made its appearance in Mr. W. R. Lee's collection in 1891. In this flower the albinism has been carried to a further extent by the elimination of the brown spots, leaving a pure white flower with the usual yellow colour on the centre of the lip. A very fine example of this latter rarity has been kindly sent by Mr. Robert Brown, of Craighead, Bothwell, N.B.



ANGRÆCUM SESQUIPEDALE.—The adjoining illustration is of a specimen plant in the Byram collection, Ferrybridge, Yorks. This season it carried five spikes of flowers; two with four each, two with three each, and one with two, making a total of sixteen blooms. The plant is in perfect health, but rather leggy. Mr. George Taylor, the successful

VOL. III.

cultivator of the specimen, generally washes out all the potting material each year as soon as root action commences after the resting season. A fresh compost of osmunda fibre, sphagnum moss, with a liberal quantity of charcoal and rough crocks, is then used. The roots are so stiff and stubborn that much difficulty is experienced in lowering the plant to a greater depth in the pot.



Angraecum sesquipedale.

SOBRALIA MACRANTHA ALBA.—A very fine specimen of this rarity was exhibited by Mr. J. Gurney Fowler at the Chelsea Show, and deservedly received a Cultural Commendation. The plant carried no less than 75 flowers and buds, and allowing for those produced previous to the exhibition the total number must have been over one hundred, truly a fine cultural achievement. Although

shown under the appropriate name of *alba*, this dwarf-growing white variety has also carried the name *S. macrantha Kienastiana*, in honour of Herr Kienast Zolly, of Zurich, who first received it from his collector. It was described by Reichenbach, in the year 1888, and was exhibited by Baron Schröder at the Royal Horticultural Society, June, 1891, when a First-class Certificate was awarded.



Dendrobium Dalhousieanum.

DENDROBIUM DALHOUSIEANUM.—The illustration on this page shows a noble specimen of this Indian *Dendrobium*, which has been grown by Mr. C. J. Salter, Orchid grower to the Right Hon. Lord Lawrence, Chetwode Manor, Buckingham. The tallest bulbs are 6 feet 7 inches in height.

OPHRYS APIFERA.

THIS pretty little British Orchid will soon appear in various parts of England, and by its gay flowers enliven many an open meadow. The remarkable resemblance which part of the flower has to a bee gives one the impression that this insect is resting on the centre of the bloom. This curious mimicry caused Langhorne to write the following lines:—

“Perhaps, his fragrant load may bind
His limbs; we'll set the captive free;
I sought the living bee to find,
And found the picture of a bee.”

This singular flower is made the emblem of industry, from its resemblance to the insect that has ever been held the symbol of this virtuous habit.

“So works the honey bees,
Creatures that by a ruling nature taught
The art of order to a peopled kingdom.”
—*Shakespeare.*

It was Robert Brown who first observed that the structure of the Bee *Ophrys* is adapted for self-fertilisation. The remarkable flexibility of the caudicles allows the pollen masses to fall to the exact level of the stigmatic surface and are there made to vibrate by the slightest breath of wind until the stigma is struck.

At the meeting of the Linnean Society, held April 17th, 1913, Mr. Edmund G. Baker gave an account of some varieties of the Bee Orchis, *Ophrys apifera*. He stated that in the typical form the labellum is broad convex, with a terminal, reflexed appendage, brown-purple, disc spotted with orange-yellow. In 1840, Hegetschweiler, in *Die Flora der Schweiz*, described and figured *Ophrys Trollii*, a plant with the middle lobe of the labellum narrow lanceolate, elongated,

purplish-red in the centre, gold at the edge. The three outer perianth lobes lanceolate pointed. The plant came from Winterthur.

In this country, further remarked Mr. Baker, there appears to be a series of intermediate forms connecting the typical form with *O. Trollii*, some being more nearly allied to the former, some to the latter. The plant from Reigate, which has been called *Trollii*, closely approximates to a figure in Reichenbach's *Icones*, Vol. XIV., t. 457, Fig. II., but it is not very like the plant of Hegetschweiler. The plant, on the other hand, figured by Mr. White in the *Bristol Flora*, more closely approximates to the true *Trollii*. There is an interesting note in the *Phytologist*, n.s. Vol. V., p. 175, on some additions to an interleaved copy of Blackstone's *Harefield Plants*, formerly belonging to Peter Collinson, stating that three roots of the Wasp Orchis were found at Clifton in 1787, the lip being very narrow, yellow streaked with dark purple. There are also plants from Oxford and Lewes which are intermediate between the Reigate plant and that from Bristol.

CATASETUM DARWINIANUM.

A RECENT issue of the *Kew Bulletin* contains a plate of *Catasetum Darwinianum*, bearing male and female flowers on the same inflorescence. The plant flowered last autumn in the Kew collection, with a second plant which bore only male flowers. Both specimens are divisions of a single plant which in 1888 produced both sexes on separate inflorescences, one of about 16 male flowers on one side of the pseudo-bulb, and one of three females on the other side. In the present case the plate shows a spike on which the three upper flowers are males, the next female, and the lower one in a transition state, the lip being most like the female in shape, but the sepals and petals most like the males, while the pollinia are almost normally developed.

In connection with these particulars, Mr. R. A. Rolfe gives in the same publication

some interesting details regarding the confusion which arose from a misunderstanding of these various forms when little was known concerning the genus. The plants bearing female flowers were originally referred by Lindley to a distinct genus which he called *Monachanthus*, while the males were referred by him to *Myanthus*.

Subsequently, in 1862, Darwin showed that *Catasetum tridentatum* produced three different kinds of flowers, which represented male, female and hermaphrodite states of the same species. At a later period, Mr. R. A. Rolfe was enabled to clear the matter up in a paper entitled "On the Sexual Forms of *Catasetum*, with special reference to the researches of Darwin and others." And an examination of all the materials available led to the establishment of four distinct sections of the genus, as follows:—

EUCATASETUM.—Lip superior in both sexes, generally more or less galeate in the male, always so (as far as known) in the female. Rostellum in the male prolonged below into a pair of slender cirrhi, called the antennæ.

MYANTHUS.—Lip inferior in the male, not galeate, more or less expanded, sometimes fringed; superior and galeate in the female. Rostellum in the male prolonged below into a pair of slender cirrhi.

ECIRRHOÆ.—Lip inferior in the male, as in *Myanthus*, but more or less saccate. Rostellum not prolonged into cirrhi. Female unknown.

PSEUDOCATASETUM.—Lip deeply saccate in the male, superior or inferior. Rostellum not prolonged into cirrhi. Female, where known, much larger than the male, with galeate lip.

Catasetum Darwinianum was named in compliment to the great naturalist, but was not one of those investigated by him. Mr. Rolfe further remarks that the females of some 20 species are now known, respecting perhaps a third of the genus, so that there is plenty of scope for those who may be able to observe the plants in their native wilds, or who cultivate them at home.

THE PHYSIOLOGY OF FERTILISATION.

THE experiment of placing more than one kind of pollen on the stigma of an Orchid is not entirely a new one, it has been done on several occasions, but usually with disappointing results when the seedlings flowered. More recent experiments, however, have shown that some advantage may possibly accrue from the method, and this brief article is intended to record a few facts and to open up the subject for further work by considering some of the problems as fully as present circumstances will allow.

In the first place, it is necessary to obtain a clear comprehension of the essential organs of fertilisation, so far as they relate to the practical side of the question, and in terms which may be understood by those who are not skilled botanists.

The pollen masses consist of many thousands of separate grains, and although extremely minute, each one is a thoroughly complete male organ capable of fertilising one of the ovules, or immature seeds, situated in the ovary, or seed-pod. The ovary contains many thousands of ovules, each one of which must, in the ordinary sequence of events, be fertilised by a pollen grain before it can become fertile or capable of germinating.

Now from the writer's experience the general belief with Orchid growers is that by some mysterious process the act of placing the pollen on the stigma causes the seed pod to grow and, after a period of about twelve months, to be full of ripe seed. Hybridists must fully realise the fact that these pollen grains grow, and actually pass down the style, or column, and come in contact with the ovules. And, also, that each single grain of pollen is usually capable of fertilising one ovule, and not more. Thus we must imagine many thousands of separate pollen grains, or males, growing down the column with the express purpose of fertilising about as many thousands of ovules, or females.

In the majority of flowers, other than Orchids, the pollen grains are in the form of fine dust, easily blown about by the wind, and

thus brought in contact with the stigmas of other flowers, fertilisation being duly effected. The removal of the pollen from one Orchid flower to another is carried out by the aid of insects who, while searching for nectar and food in the flower, unconsciously remove the pollen masses, and these becoming affixed to their body are thus carried to the next flower visited. Therefore, it is easily seen why the pollen grains must be so sticky and connected, or packed up as it were ready for the insect to carry away.

Another important point to realise is that cutting the pollen masses in pieces with a knife in no way interferes with their power, the operation merely lessens the number of grains in each portion, just in the same way that cutting a sack of wheat in half would lessen the number of grains in both halves, but no one would suggest that each separate grain is rendered worthless by so doing.

In the plant's natural country we are not concerned so much with hybrids, but with species, and although it is not known for certain whether in any particular species the number of ovules is equalled by a similar number of pollen grains, we do know that the masses of pollen are suitable and readily accepted by the stigma of the flower. But in the making of a hybrid it is sometimes found that the pollen masses are rejected. The side wings of the column close over the stigma and, instead of safely enclosing the precious substance, they, by some means or other, find their way beneath the pollen masses and practically remove them from the flower. From this action it is reasonable to assume that the number or size of the pollen grains may be unsuitable to the female organ, and proof of this theory lies in the fact that success has been achieved whenever a portion only of the pollen mass has been used.

It is quite possible for several different hybrids to be produced from the same seed pod. In fact, there is no reason, theoretically, why as many different hybrids should not be produced as there are various kinds of pollen

placed upon the stigma. The reason why the few attempts so far made in this direction have more often than not ended in failure must now be considered.

Cattleya labiata when crossed with *Cattleya Hardyana* (*gigas* × *aurea*) produces seedlings inheriting the characters of all three species, because each single pollen grain from the *Hardyana* contains in a fused state the characters of both *gigas* and *aurea*. But if *C. labiata* is fertilised with two pollen masses, one of which comes from *gigas* and the other from *aurea*, the resulting seedlings are either *C. amabilis* (*labiata* × *gigas*) or *C. Fabia* (*labiata* × *aurea*), just in the same way as though two distinct flowers of *labiata* had been pollinated each with only one kind of pollen. There is no possibility of obtaining a hybrid similar to *labiata* × *Hardyana*, for the simple reason that only one pollen grain, either from the *gigas* or *aurea*, is able to fertilise an ovule of the *labiata*.

In using two or more diverse pollen masses there are certain factors necessary to ensure success, and, unfortunately, these are not entirely under our control. In the first place, it is not advisable to put the whole of both pollen masses on to the stigma, for, as previously mentioned, the unusual size of the mass may cause the whole to be rejected. The safest way is to use only sufficient portions of each that will make the whole of normal size. Thus if two species are used as pollen parents, only one-half of each pollen mass should be used; and, if four male parents, then one quarter of each will prove sufficient.

Secondly, the growth of the pollen grains through the column and amongst the ovules is a factor of which we have no control. It appears impossible for the short growing pollen grains of *Sophranitis grandiflora* to grow down the whole length of the long style possessed by *Brassavola Digbyana*; they grow to a certain length, but never sufficiently far to reach the ovules and effect fertilisation. Therefore, in the use of mixed pollen, the inability of one kind to reach the ovules might be a cause of the failure to produce our desired

result of obtaining two different hybrids from the same seed pod. It will be readily seen that the only pollen to take effect would be the one capable of growing sufficiently in length to reach the ovules.

Thirdly, the rate at which the pollen grains grow down the column into the ovary needs consideration, for it is fairly certain that all pollen grains are not equally rapid in their growth. It is known that the number of separate ovules and pollen grains can only be reckoned in tens or hundreds of thousands, but for simplicity let us assume that the number of ovules is only ten. If now an equal number of pollen grains be used there will be one to fertilise each ovule; but suppose two kinds of pollen masses, each consisting of ten grains, are placed on the stigma, then it is quite possible that one kind may be of much quicker growth than the other, and these by arriving first in the ovary will fertilise all the ovules before the second or slower-growing kind arrives. It is at once obvious that the latter can have no influence whatever. But if only five pollen grains from each are placed on the stigma there is every possibility that each one will in due course meet with an unfertilised ovule. Thus we see the need of using a portion only of each pollen mass.

Fourthly, the passage of the pollen down the style and into the ovary must also be considered. Each pollen grain grows down the central loose tissue of the style in the form of an elongated cell, generally known as the pollen tube. This process is brought about by the action of enzymes, or dissolving material, contained in the tube, which enables it to bore its way down the style and eventually reach an ovule. A second object of these enzymes is to abstract nutritive substance from the surrounding material in order to nourish the growing pollen tube. It will, therefore, be seen how much really depends on the effectiveness of the enzymes, for if they are unable to perform their function it is impossible for the pollen grains to reach the ovules.

It is extremely difficult, one might almost say impossible, to hybridise *Odontoglossum crispum* with the pollen of *Odontoglossum*

Edwardii, the pollinated flowers only last a few days and then fall off. It seems reasonable to assume that the pollen of this latter species is unable to produce an enzyme suitable to the style of the *Odontoglossum*, and on that account the pollen tubes make no headway.

Some recent experiments, however, seem to show that this failure to set a seed pod may be overcome by placing other pollen, such that is known to be effective, on the style in addition to that from Edwardii. An instance has occurred where some pollen of *crispo-Harryanum* and Edwardii were both placed on the stigma of *Odontoglossum crispum*, with the result that a seed pod containing fertile seed was formed, and which, in due course, produced numerous plants, the majority showing the distinct habit of growth possessed by Edwardii.

When the seed first showed signs of germination the natural thought was that the pollen of *crispo-Harryanum* had done all the fertilising, but as the seedlings grew and the evidence of the Edwardii became apparent it appeared fairly certain that a hybrid had at last been obtained by crossing *crispum* with Edwardii.

The only possible means by which this strange event has taken place seems to be that the pollen tubes of the *crispo-Harryanum* contained, as they usually do, the necessary and suitable enzyme to permit them passing through the style of the *crispum*, and that the nutritive material formed by them was utilised by the Edwardii pollen tubes which were then able to grow along the same channel until they reached the ovary and effected fertilisation. No doubt both the *crispo-Harryanum* and the Edwardii pollen tubes all reached the ovary at the same time, but the latter were attracted by the ovules more than the former.

Another interesting case is where *Odontoglossum crispum* was pollinated with another *crispum*, and, at the same time, with the pollen of *Miltonia vexillaria*. It is rarely that *crispum* can be hybridised with *vexillaria*, but in this instance all the seedlings show unmistakable signs of *vexillaria*.

ORCHID SALES.

ON Wednesday, May 21st, Messrs. Protheroe and Morris held a sale of Orchids by order of Messrs. Sander and Sons. The following figures are of interest:—*Cymbidium erythrostylum*, 4½ gns.; *C. Alexanderi*, 3½ gns.; *Cattleya Mossiæ Wagneri*, 22 gns.; *C. Hardyana albens*, 25 gns.; *C. Mulleri*, 5½ gns.; *Odontoglossum crispum igneum*, 5 gns.; *O. lucidum*, 4½ gns.; *O. Bronze Prince*, 8 gns.; *O. crispum Captivation*, 17 gns.; *O. luminosum*, 7½ gns.; *C. Alcibiades Illustrious*, 27 gns.; *C. Mrs. F. Sander*, 7½ gns.; *C. Dreadnought*, 10 gns.; and *Lælio-Cattleya Cora*, 7½ gns. Imported plants of *Vanda Sanderiana* sold well, the highest figure being 23 gns. for a selected piece. Imported *Phalænopsis amabilis*, several on a native stick, went for 4 gns.

On the same day, the following were included from the collection of Mr. R. Brooman-White:—*Odontoglossum crispum Wilson*, 16 gns.; *O. Wilckeanum The Kaiser*, 30 gns.; *O. xantholeuca*, 45 gns. Also a selection of plants from the collection of Mrs. Norman Cookson:—*Odontioda Bradshawia Cookson's var.*, 18 gns.; *O. ardentissimum Norman Cookson*, 30 gns.; *O. a. Peetersii*, 8½ gns.; and *O. crispum Fearnley Sander*, 30 gns. Duplicates from the collection of Mr. H. T. Pitt were as follows:—*Odontoglossum crispum F. K. Sander*, 75 gns.; *O. Uro-Skinneri album*, 15 gns.; *O. c. Lindenii*, 22 gns.; and *Cattleya gigas*, 10 gns.

On Thursday, May 22nd, a sale of plants by order of M. Jules Hye de Crom:—*Odontoglossum Dame Blanche*, 36 gns.; *O. crispum Pittianum*, 56 gns.; *Cattleya Warneri alba*, 10 gns.; *C. Trianæ alba*, 7 gns.; and *Miltonia vexillaria G. D. Owen*, 75 gns. From the collection of Mr. F. W. Wellesley:—*Lælio-Cattleya Morningtoniæ*, 25 gns.; *L.-C. Mrs. W. Hopkins*, 12 gns.; *Cypripedium Waterloo*, 12 gns.; and *Cattleya Trianæ Purity*, 10 gns. By order of Mr. E. V. Low:—*Cattleya Trianæ The Premier*, 25 gns.; *C. labiata Gilmouræ*, 30 gns.; and *Odontoglossum crispum solum*, small plant, 65 gns.



The Orchid House of Chas. Power, Esq., Barrackpore, India.

ORCHIDS AT BARRACKPORE.

THE above illustration shows some of the many plants flowering in Mr. Chas. Power's collection at Barrackpore. These Orchids are growing in a simple construction of bamboo lattice work entirely covered with wire netting, over which creepers are trained in sufficient density to provide adequate protection from the fierce rays of the sun. The floor of this structure is composed of broken bricks laid to the depth of about six inches over the natural soil, which on being flooded in the early morning imparts sufficient moisture to the atmosphere for the rest of the day; a slight overhead syringing of the plants after sundown being also beneficial. This mode of construction permits a free current of fresh air throughout the house, which is most essential to the good

growth of the plants, otherwise during the heavy raining season the atmosphere would soon become stagnant.

At the time that the above photograph was taken the following species were more or less in bloom:—*Dendrobium Pierardii*, hanging in large pendant clusters in the background, *D. lituiflorum*, *D. crepidatum*, *D. chrysotoxum*, *D. aggregatum*, *D. superbum*, *Cattleya Trianae alba*, *C. Mossiæ*, *Phalænopsis Schilleriana*, *P. amabilis*, *Vanda teres* and *V. Roxburghii*. All of these, with the exception of the Vandas, are imported plants, which, with care, thrive at Barrackpore equally as well as in their native habitat, the Bengal atmosphere being of a similar damp and muggy nature. The Anthuriums to be seen on either side of the staging harmonise with the surroundings and thrive well in the same conservatory.



Miltonia vexillaria G. D. Owen, a fine specimen with 8 spikes and 33 flowers, in the Westonbirt Collection.

MILTONIA HYBRIDS.

THE present time is but the commencement of an important advance in the breeding of Miltonias, more especially those of the vexillaria, Rœzlii, and Phalænopsis section. One curious and unexpected result appeared when the seedlings of *Miltonia Bleuana* (vexillaria × Rœzlii) first began to flower, for in almost every case the blooms on this hybrid were much larger than those of either parent. It is generally noticed that the flowers of primary hybrids are intermediate in size, but in this case the fusion of two somewhat similar species produced a hybrid giving flowers with a marked increase of size. This rare and unaccountable result came as a welcome surprise, and was one of the encouraging factors that led to the present interest in the genus.

One of the next steps taken by the hybridist was to cross Rœzlii with Bleuana, making *Miltonia St. André*. Good results were again obtained, although no further increase of size took place. Another success was brought about by crossing Bleuana with vexillaria, producing the hybrid known as Hyeana. In Bleuana Peetersiæ we have an elegant addition produced by mating two distinct varieties of Bleuana. Two more hybrids can be added to the list, viz., *Sanderiana* (St. André × Bleuana) and *Jules Hye de Crom* (Hyeana × vexillaria). A very beautiful variety of the latter was exhibited at the Chelsea International Show, 1912.

All the above hybrids are formed by various crossings of vexillaria and Rœzlii, and it may safely be stated that continued success will be obtained by continuing the process, taking care on each occasion to use only the finest

and most distinct varieties. The difficulties of nomenclature are with us again, for while it may be possible to apply a new name to every successive step the hybridist takes, it will, in the near future, be quite impossible to determine under which name a plant is to be placed, should it by any chance lose its label or appear as a stray seedling. The simplest way out of the difficulty appears to be to call every hybrid containing only vexillaria and *Rœzlii*, no matter in what proportion, by the name *Bleuana*, and to add varietal words to distinguish the various forms.

Now, seeing that between thirty and forty varieties of *Miltonia vexillaria* have been certificated by the Royal Horticultural Society as distinct forms, there is evidently plenty of material for the hybridist to work from. The variety of vexillaria known as G. D. Owen at once comes to the front as a suitable plant, and the more one studies this flower, so much the more remarkable does it appear. The large, dark crimson blotch on the crest portion of the labellum is a great attraction, and it is the further development of this feature that hybridists are working for. The origin of this elegant blotch of colour seems beyond hope of discovery. It is, however, quite permanent, reappearing on the flower of the same plant year after year with never-failing accuracy. Its nearest relation is vexillaria *Leopoldii*, but strange to say, this usually flowers in the autumn, and therefore, is not always available for use when other vexillarias are in flower. The variety of *Bleuana* known as *Stevensii* was produced by its use.

M. vexillaria chelseaensis is another variety with the labellum marked with crimson-purple, the blotch having radiating lines which are extended by means of various sized spots of similar colour. At the recent Ghent Show a promising seedling between G. D. Owen and *chelseaensis* was exhibited by Messrs. Charlesworth, and although the well-defined blotch was not quite so large as that of the former parent, it proved that it is capable of being transmitted to the offspring.

VOL. III.

A careful survey of a large number of flowering plants of vexillaria will show how very seldom any depth of colour, other than yellow, appears on the crest area of the labellum. The species is so constant in form and coloration that any variation may be taken as a rarity worth further cultivation. However, now and again a rich rose coloured form appears, and in almost all of these it is noticed that the crest area on the labellum



Miltonia Phalænopsis "McBean's var."

still remains in its typical yellowish-white state. It is on account of this apparent impossibility for the yellow area to acquire any other colour that the remarkable blotched forms of the G. D. Owen type make such a lasting impression of wonderment upon the minds of the specialist. How, or by what means, this blotch was first developed will probably always remain an unsolved mystery. An homologous example is *Odontoglossum crispum solum*, figured in *ORCHID WORLD*, Vol. II., p. 249, although in this plant the

suggestion has been put forth that the blotch on the crest area is due to the ancestral influence of *Odontoglossum Lindleyanum*, which seems very feasible.

Miltonia Phalænopsis has not yet received the attention that it apparently deserves. There is a wide future open to the hybridist who can enlarge the area of the colour blotching on the labellum of the *vexillarias*, and there is every good reason to believe that it can be accomplished by the use of *M. Phalænopsis*. The illustration which we give is of a very fine variety in which the blotching is developed to an unusual extent, although even in the ordinary typical forms there is a considerable amount of purple pigment displayed in various parts of the labellum. The special use which *M. Phalænopsis* will be to the hybridist lies in the extended area of its blotching. It does not require much imagination of the mind to picture what a beautiful result would be obtained if the characters of *vexillaria G. D. Owen* could be combined with those of McBean's variety of *Phalænopsis*.

Cochlioda Nœzliana must also be considered, for its influence has already been seen in *Miltoniodes Harwoodii* (*M. vexillaria* × *C. Nœzliana*), and others. It will be many years before a full size scarlet *Miltonia* of the *vexillaria* section is produced. At present we have only reached the first step towards our desired object. *M. Harwoodii* has a poor constitution, rendering it very difficult to cultivate, and the flower is somewhat lacking in substance. But, on the principle of nothing venture nothing have, the hybridist has already commenced a further advance, and before long we shall see a better result in a seedling produced by uniting *Harwoodii* with *vexillaria*, or with another flower of the same section.

It is somewhat premature to speak with much certainty as to the possibilities of uniting *Miltonias* of the *vexillaria* section with *Odontoglossums* of the *crispum* kind. So far, we have *Odontonia Ellwoodii Rœzlii* × *cirrhum*), *Vuylstekei* (*vexillaria* × *amabile*), and *Firminii* (*vexillaria* × *crispum*). The

latter cross was only made to test the practical point of whether this hybrid could be produced, and on that account it was not thought necessary to use anything but ordinary varieties. But good and promising as the result was, it will undoubtedly be greatly improved when superior varieties are used, such, for example, as *vexillaria G. D. Owen* and *crispum Lucianii*.

THE SANDER CUP GROUP.

THE illustration on page 205 shows the excellent group of Orchids exhibited by Mr. R. Brooman-White at the recent spring show of the Royal Caledonian Horticultural Society, and this being the third occasion on which the exhibitor has won the First Prize, the handsome 25 guinea Challenge Cup presented by Messrs. Sander and Sons now becomes his property.

The group, occupying a space 12 feet by 6 feet, was tastefully arranged by Mr. Jas. Smith, who so ably cultivates the plants in the Arddarroch collection, and contained a most representative collection of spring-flowering Orchids, all of which were staged in a manner that clearly showed every plant to advantage.

The centre was composed of good varieties of *Cattleya Schröderæ*, distinct forms of *Cymbidium insigne*, *Lowianum*, and *eburneo-Lowianum*, while along the front row were various varieties of *Odontoglossum Rossii majus*, including *roseum*, and dark forms of *Miltonia vexillaria*. Distributed at different points of advantage were many fine spikes of *Odontoglossum crispum*, for which the Arddarroch collection is specially noted.

Cypripediums, including albino forms, and blotched *Odontoglossums*, both species and hybrids, were shown in fine style, and along the back row good plants of *Odontoglossum Edwardii* and several hybrids derived from this species, together with various *Epiden-drums*, made up a very attractive exhibit. Mention must also be made of *Angræcum sesquipedale*, whose wax-like flowers with their long spur were a never failing cause of wonderment to the many who visited the exhibition.



*The excellent group of Orchids exhibited by R. Brooman-White, Esq., at the Royal Caledonian Horticultural Society.
Awarded the 25 guinea Challenge Cup offered by Messrs. Sander & Sons.*



The Large Gold Medal and the Work of Art offered by M. Firmin Lambeau for the most varied and meritorious collection of Orchids at the Ghent Exhibition, 1913. Awarded to MM. Th. Pauwels & Co., Meirelbeke, Belgium.

The Marlfield Collection.

*WEST DERBY,
LIVERPOOL.*

OF the many collections of Orchids in Lancashire, one of the oldest, and also one of the healthiest, is that at Marlfield, West Derby, Liverpool, the residence of Richard le Doux, Esq. Lovers of nature will find numerous objects of beauty in the many green-houses which are conveniently situated in the extensive and attractive garden of this residence. Orchids, of course, easily hold the premier position, and receive the largest amount of admiration, for to them undoubtedly belongs all that is sublime and beautiful. After a long period extending to some thirty or more years, spent in the cultivation of these plants, it is

not surprising to find that Mr. le Doux has a wide knowledge of the subject, and his ready memory serves to recall many past experiences and details of Orchids which from time to time have been added to his

collection. But in this he is not alone, for whenever the conversation turns to the topic of Orchids, one finds that Mrs. Richard le Doux is not only a student and lover of

nature, but a close follower of the hybridist's art, and thus is fully able to appreciate the various methods and results by which this gorgeous family of plants is being rapidly extended.

For decorative purposes *Dendrobiums* prove very useful, the more so when the whole bulb with all the flowers attached is severed from the plant. At Marlfield, *Dendrobium Ainsworthii* splendidissimum, nobile virginale, *Dearei*, *Devonianum*, and *Thwaitesiae* are favourites. These

plants have made rapid headway, and the thick, healthy bulbs are just the kind to give an abundance of large, long-lasting flowers. Several good plants of *Coelogyne Dayana* are producing their interesting and necklace-like



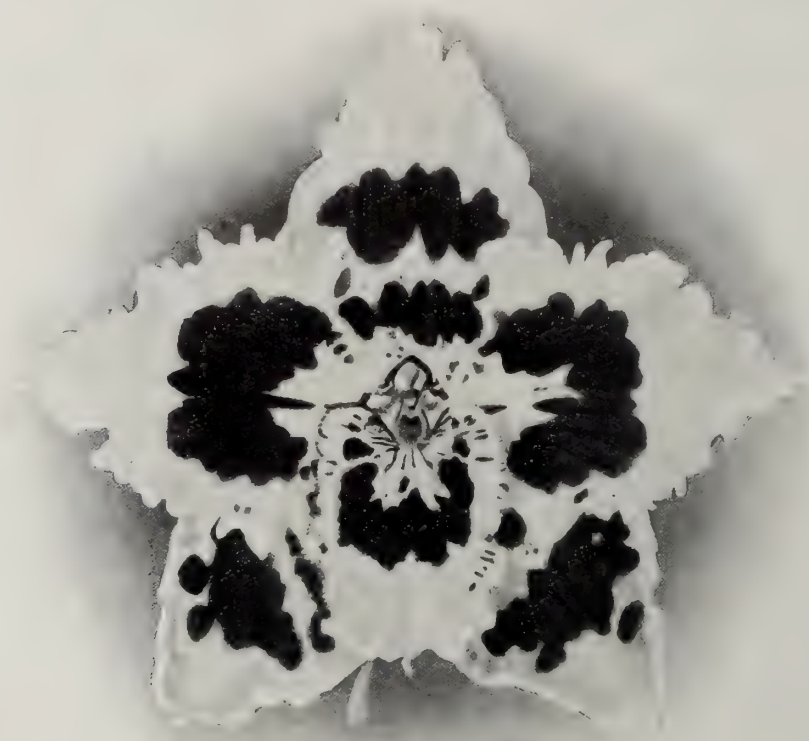
Richard le Doux, Esq., and Mrs. R. le Doux.

spikes of flower. One cannot imagine how artistic these pendulous spikes of flower must look swayed to and fro by the wind when growing in their native forest.

In the *Odontoglossum* house may be seen many beautiful varieties of these charming plants. The species best represented are *crispums*, in large number and variety; *cirrhosum*, one plant of which has five many-flowered spikes; a good piece of *hastilabium*; the purple-flowering *Edwardii*; *Hallii*, with

Hybrid *Odontoglossums* are always of a stronger constitution than the species, and at Marlfield there is no exception to the rule. The best flower spikes have been seen on *Lambeauianum*, *Rolfeæ*, and *crispo-Harryanum*. A richly marked *Solon* (*ardentissimum* × *Adrianæ*), a bright yellow form of *harvengtense*, several distinct varieties of *Ossulstonii*, and a nice plant of *Persephone* (*Pescatorei* × *Adrianæ*) may also be seen.

One side of a span-roofed house is devoted



Odontoglossum Mrs. Carlisle.

its very spiny crest; and several plants of *Pescatorei*, one having large flowers of good substance, and with a richly coloured crest; *Odontoglossum maculatum*, with its relation *aspersum*, lasts a long time in flower, and there are several strong plants of *grande Charlesworthii*, a beautiful variety in which the flowers are almost pure yellow. Suspended in shallow pans from the roof are numerous plants of *Rossii majus*.

to *Miltonias* of the *vexillaria* section, and it would be almost impossible to create a more artistic effect, the beautiful flowers reminding one of delicately tinted china. *Miltonia Bleuana* is represented by several choice varieties, of which mention may be made of *Kaiser Wilhelm*, exhibited at the Chelsea International Show; *Mr. le Doux*, an elegant flower; and one having the ray-like disc on the labellum of quite a bright red colour,

and with a charming rose flush of colour on the other segments. *M. vexillaria* Cobbiana, a well-known variety, and *M. v. Gladys Lederer*, a dark rose variety, are worthy of special notice.

Rare *Odontoglossums* are to be seen on another spacious staging. The following are just a few which happen to be in prominent positions: *Blue Peter*, which, as its name suggests, has quite a blue tint; *Lady Pirrie*, a fine example of the *eximium* section, and

there is a good selection of various *Odontiodas*, their scarlet coloration making a pleasing contrast to the *Odontoglossums* of the rosy-purple kind. A lean-to house facing due south contains a nice collection of *Lælia anceps*, most of the best varieties being included. Very little shading is given to this house, and on all favourable evenings rain water is lightly sprayed over the plants. A few of the sun-loving *Dendrobiums* are grown in this house; at the present time



Odontoglossum Lady Pirrie.

of which we give a reproduction of a painting; *Mrs. Carlisle*, which may be best judged from the illustration in this issue; *Mrs. H. B. Irving*; *Mrs. Arline King*, *Mrs. Hattie Bareiss*, *James White Barclay*, and *Lord Pirrie*, all of which are excellent examples of present-day hybrids. *Odontoglossum Mrs. R. le Doux* is an extremely beautiful flower, probably the result of crossing *crispum Lucianii* with *ardentissimum*.

Besides many other interesting plants

D. suavissimum is carrying several spikes of rich golden-yellow flowers, which are rendered very welcome by their delicious scent.

The *Cattleyas* are cultivated in a spacious span-roof house with central staging upon which the large specimen plants are grown. These include a magnificent plant and variety of *Lælio-Cattleya callistoglossa*, a very rich and dark form of *C. Lawrenceana*, a fine assortment of *labiatus*, of which mention must be made of a choice variety known as

Maud le Doux, and another as Mrs. R. le Doux, the latter being of the scarce albescens type; also one called Richd. le Doux, with no sign of purple, the flower being pure white. There is, as well, a good plant of *labiata* Gilmouræ.

One corner of this house is entirely devoted to albino Cattleyas, where may be seen Mossiæ Wagneri, and C. Mendelii Madame R. le Doux, a charming variety with pure white sepals and petals and a light blue tinge on the lip. *Cattleya Trianae* Ada le Doux is of excellent shape, with purple feathering down the centre of the petals.

Besides many good examples of *Cattleya Fabia*, there are several plants of *C. Hardyana* which have been raised in this country from selected parents, and on that account are finer than most of the natural hybrids. One of the gems of the collection is undoubtedly to be seen in *Cattleya* Mrs. Pitt, Charlesworth's variety, the colour being intense rose-purple with marble-like markings of crimson and gold on the lip. It is admitted by one and all to be the finest form of this popular hybrid.

The *Cypripediums* are grown in a span-roof house, and although some of the latest additions are as yet small plants, it will not be long, judging by the numerous new growths now being produced, before they attain full size. The well-known *Cypripedium* Olga Bagshawe originated in this collection some twenty years ago. The pretty albino *callosum* Sanderæ is represented by upwards of fifty nice plants, and *Maudia magnificum*, *Lawrenceanum* Hyeatum, *insigne* Sanderæ, and *insigne* Harefield Hall are to be seen in robust condition. Other noted hybrids are *Germaine* Opoix, *Gaston* Bulteel, *Dreadnought*, *illustre* Alcibiades, *The King*, *Royal George*, and *Queen Alexandra*, the latter a most beautiful variety of this hybrid between *Thompsonii* and *Charlesworthii*.

Cypripedium bellatulum is grown in a mixture of loam, lime rubble and corks, a compost which suits them admirably. Over thirty specimen plants have been grown from two original plants imported but a few years

back. The chaste variety known as *album*, the semi-albino form called *Queen of Spain*, and the dark exim's variety are in first-class condition. Quite a picturesque effect is produced by several good plants of *niveum* with their small, but nevertheless pretty, wax-like flowers.

At Christmas time quite a display of bloom is produced by a large and varied batch of *Calanthes*, while at other times various forms of *Phaius* give an abundance of flower. *Oncidium flexuosum* is much admired at Marlfield, and its graceful flower-spikes have caused Mrs. le Doux to appropriately christen it the "Golden Rain Orchid."

Space does not permit of describing the numerous typical species of the various genera which are in this collection, interesting as they are to the botanist and beautiful to the amateur. As so much of the pleasure to be obtained from Orchids depends on their efficient cultivation, it must be said that considerable praise is due to Mr. J. W. Fletcher for the able manner in which he manages this large and varied collection of plants. In nearly every plant examined a rapid increase in the size of the bulbs or growths was visible, and with such good results as these great encouragement is given to one and all. Mr. Fletcher has just reason to be proud of his work, and he well earns all the praise he receives.

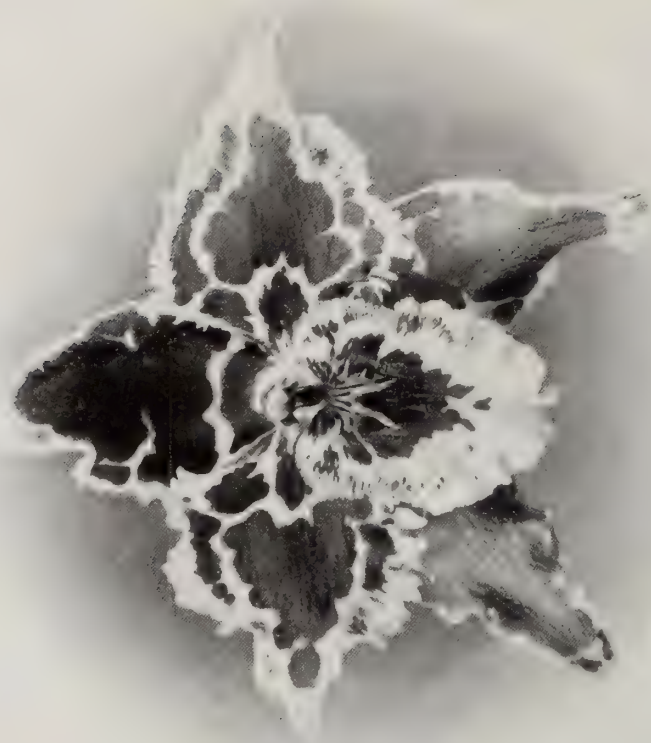
NEW HYBRIDS.

LÆLIO-CATTLEYA SCHRÖDERASCENS.—This pleasing hybrid between *C. Schröderæ* and *L.-C. hightburyensis* has much of the former parents' delicate colour, although the *cinnabarina* influence, derived through *hightburyensis*, has given a richer tone. The segments are rather narrow, but made attractive by rose venation. The orange throat and crisped margin to the labellum are other attractive features. Raised by Mr. Eustace Clark, Evershot, Dorset.

BRASSOCATTÆLIA GERALD.—Messrs. J. Veitch and Sons have produced this new hybrid by crossing *B.-C. Digbyano-purpurata*

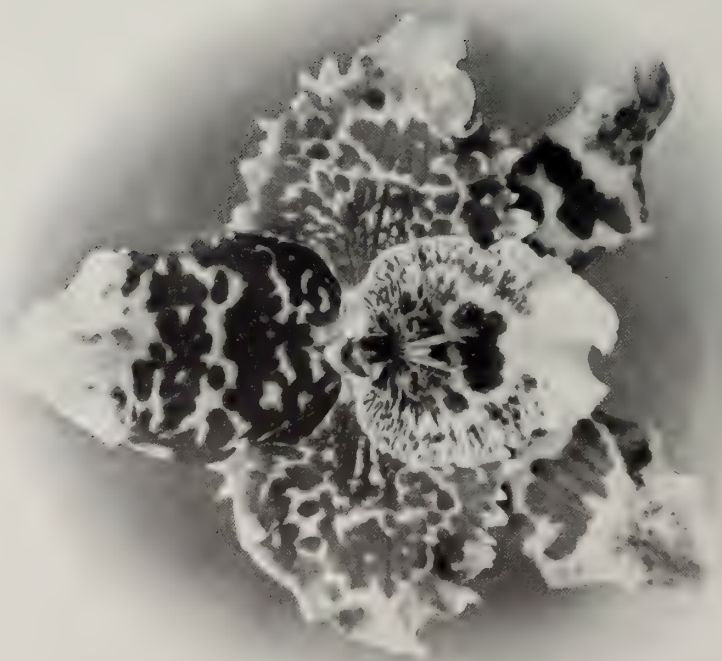


Cattleya Madame le Doux.
A beautiful hybrid in the Marlfield collection.



Odontoglossum Georgius Rex.

From a spike of 30 flowers.



Odontoglossum Empress of India.

From a spike of 18 flowers.

Two beautiful Odontoglossum hybrids shown by Messrs. Charlesworth & Co. at the Chelsea Exhibition, May, 1913.

with *L.-C. blechleyensis*. One of the first of the batch to bloom has a wide flower, of good texture, and of an even rosy-mauve colour, the labellum being of a similar tint to the sepals and petals.

LÆLIO-CATTLEYA DUCHESS OF CON-NAUGHT.—At the Manchester Orchid Society, May 1st, 1913, Mrs. Gratrix, of Whalley Range, exhibited this hybrid between *L. harpophylla* and *C. Schröderæ*, and which does not appear to have been previously recorded.

DENDROBIUM HARRISONII.—By crossing *D. nobile nobile* with *Dominianum* (*Linawianum* × *nobile*) Mr. C. Alwyn Harrison has produced a bright rose-purple hybrid. The seed was sown in 1908, and the seedling, now flowering for the first time, resembles the pollen parent in growth. From the same collection comes *Cattleya Mossiæ* var. *King Nicholas*, a large flower with much yellow coloration on the labellum.

ONCIDIUM McBEANIANUM.—A very beautiful and interesting hybrid between *superbiens* and *macranthum*. The plant is four years old and carries a trailing spike of over 30 flowers, intermediate in size and colour. The sepals are golden yellow with a slight suffusion of chocolate red, the petals having the characteristic blotches of *superbiens* on their basal half, but the colour of these is modified. Raised by Messrs. J. and A. McBean, of Cooksbridge, and exhibited by them at the Chelsea Show, 1913.

LÆLIO - CATTLEYA SALMONEA.—The parents of this new hybrid are *G. S. Ball* (*cinnabarina* × *Schröderæ*) and *Latona* (*cinnabarina* × *purpurata*). The resulting flower is bright salmon-red, with a rich orange-coloured throat. Exhibited by Messrs. Mansell and Hatcher at the Chelsea Show, 1913.

BRASSOCATTLÆLIA EXCELSIOR.—Messrs. Armstrong and Brown have raised this hybrid by crossing *L.-C. George Woodhams* (*purpurata* × *Hardyana*) with *Brassavola Digbyana*. The result is a large flower, dark crimson-purple in colour, the lip fringed and undulated at the margin. Award of Merit, Chelsea Show, 1913.

LÆLIO-CATTLEYA IMPERATRIX REGINA.—A new hybrid between *C. Mendelii* and *L.-C. Martinetti* has been flowered by Messrs. Sander and Sons. The broad lip of *tenebrosa*, derived through the latter parent, has blended with the dark purple one of *Mendelii* and produced a good result.

BRASSO-CATTLEYA MIRABILIS.—The result of crossing *Cattleya Mendelii* with *Brasso-Cattleya* Mrs. J. Leemann, and likely to give excellent results, all three parental species being noted for their distinct lips. Raised by Messrs. Sander and Sons.

ODONTIODA PENELOPE.—A new primary hybrid between *Odontoglossum Harryanum* and *Cochlidia sanguinea* was exhibited at the Chelsea Show by Messrs. Armstrong and Brown. The petals are inclined forward, as usually seen in *Harryanum*, the labellum is ovate and pointed, with a prominent crest. In colour the sepals and petals are rose-crimson, the labellum deep rose, and the column white. Its nearest relations are *wickhamensis* and *Kitty*.

ODONTOGLOSSUMS.—The following new hybrids have been named as follows by Messrs. Sander and Sons:—*Endymion* (*crispo-Harryanum* × *excellens*), *Bronze Prince* (*Royal Sovereign* × *Harryanum*), *luminosum* (*ardentissimum* × *Fascinator*), *Chieftain* (*Rolfeæ* × *Vuylstekei*), *lucidum* (*triumphans* × *Ossulstonii*), and *Conqueror* (*crispum* × *illustrissimum*).

BRASSO-CATTLEYA MENDELOSA.—An interesting hybrid has been raised by Messrs. J. and A. McBean between *Brassavola nodosa* and *Cattleya Mendelii*. As may be expected from past experience the strong influence of the *Brassavola* parent has predominated in the seedling, still it forms a useful addition to the series, and is likely to suit a house where the atmosphere is somewhat drier than usual.

ORCHID SALE.—The collection of Orchids belonging to Sir William Bass is to be dispersed under the hammer of Messrs. Knight, Frank and Rutley, at Byrkley Lodge, near Burton-on-Trent, early in July.

GHENT SHOW.

(Concluded from page 188.)

M. Maurice Verdonck, received a Gold Medal, value 50 francs, for the best collection of Orchids from Colombia, Venezuela, Peru, and the Equator; and a similar award for Orchids from India. M. Verdonck also obtained a Silver-gilt Medal for a collection of Dendrobiums, and a Gold Medal for Odontoglossums.

M. Vincke, Bruges, was awarded a Silver-gilt Medal for an exhibit of *Vanda suavis*.

Mons. J. van de Putte, received a Gold Medal, value 100 francs, for an excellent collection of Orchids, and various Prizes for special species and varieties.

Mons. Firmin Lambeau, Brussels, exhibited *Cymbidium Humblotii*, and obtained the First Prize for the best *Cymbidium*. Count Joseph de Hemptinne, St. Denis, Westrem, secured the Second Prize for a magnificent specimen *Cymbidium Lowianum*, carrying 36 long spikes. The plant had been in his collection 16 years.

In the class for the most beautiful *Dendrobium*, Mons. Verdonck secured a Silver-gilt Medal for *D. densiflorum*, and Sir Jeremiah Colman, Bart., obtained a Silver Medal for *D. Lady Colman*. This latter exhibitor also received a Silver-gilt Medal for the finest variety of *Odontoglossum crispum*.

For the finest *Lycaste*, Messrs. Pauwels were awarded a Silver-gilt Medal for *Lycaste Skinneri alba* "La Perle." The Second Prize going to Messrs. J. van de Putte and Co.

Mons. Th. Pauwels, secured a Silver-gilt Medal for the finest *Cymbidium* hybrid by exhibiting *C. Pauwelsii*; and a similar award for *Cypripedium Alcibiades* "Roi Albert." This same exhibitor staged a magnificent specimen *Eulophiella Peetersiana* (Hamelinii) with two tall spikes each carrying about two dozen rose coloured fleshy flowers.

Mme. A. de Schryver-Block, Gentbrugge, was awarded a Second Prize for an exhibit of 15 *Cypripediums*.

For the best exhibit of *Phalænopsis*, Mons.

Th. Pauwels secured the First Prize, and Mons. L. Hoornaert, St-Nicholas, won the Second.

Mons. Firmin Lambeau was awarded a Silver-gilt Medal for the finest *Odontioda* (Coronation), and Sir Jeremiah Colman, Bart., secured a Silver Medal for *Odontioda Bradshawiae* "Lady Colman."

Messrs. J. van de Putte and Co. were first with *Sobralia*, and Mons. Th. Pauwels secured a Silver-gilt Medal for *Trichopilia Hennisii*.

ORCHID GROUPS.

EXHIBITORS of Orchids at the Royal Horticultural Society should bear in mind the fact that Cups and Medals are awarded in accordance with the high-class nature of the plants included, and not to the amount of space that is occupied. The Society desires to encourage the cultivation of improved and new varieties, rare species and specimen plants, and it is for such that the judges award points.

The exhibitor who stages one hundred square feet of ordinary varieties frequently expresses surprise when a group of often less than half the size receives a higher award for the reason that it contains plants of superior merit.

These remarks do not apply to Orchids only, but to all kinds of plants, and if the staging of large areas of similar or ordinary plants continues the Council may find it necessary to restrict such exhibits to reasonable proportions.

However large the exhibition may be there is always a limit to the space at the disposal of the authorities, and it is very disappointing to those amateurs who, after cultivating with great care the plants in which they are specially interested, find that they are prevented from exhibiting the same owing to insufficient room.

There is no doubt that in the early days of the Society, when it did not enjoy such prosperity as is now the case, the exhibiting of large groups of similar plants was of great assistance in forming a show, but in these

days of continued increase in the number of Fellows, and the material which they exhibit, it seems only reasonable to expect that quality must take the place of quantity.

When necessary, newly imported plants will be referred to the Scientific Committee, that they may be correctly named. All such specimens should be accompanied with as accurate information as possible as to the countries from which they have been introduced, or the parentage from which they have sprung. Botanical Certificates and Certificates of Appreciation are entrusted specially (but not exclusively) to this Committee, which is composed of eminent men of science, most of them possessing practical knowledge of gardening as well, and they are at all times ready to report and advise on plant diseases, peculiarities and sports. The subjects thus dealt with include botany, entomology, bacteriology, chemistry, morphology, etc.

ROYAL HORTICULTURAL SOCIETY.

May 14th, 1913.

MEMBERS of the Orchid Committee present: J. Gurney Fowler, Esq. (in the chair), Mr. J. O'Brien (hon. sec.), Sir Harry J. Veitch, Gurney Wilson, A. McBean, R. A. Rolfe, W. Cobb, J. Cypher, H. G. Alexander, A. Dye, W. H. White, and S. W. Flory.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford, exhibited a number of rare plants, including *Dendrobium thyrsiflorum* Gallicianum, a peculiar form with an imperfect lip; *Odontoglossums*, and a good specimen *Cochlioda sanguinea*.

Sir George H. Kenrich, Whetstone, Birmingham, received a Silver Flora Medal and Cultural Commendation for a dozen good plants of *Dendrobium Dalhousieanum*, 4 to 5 feet high. These had all been cultivated from one original plant imported twelve years ago.

W. R. Lee, Esq., Plumpton Hall, Heywood, exhibited *Odontoglossum Pavlova*, a beautiful hybrid of unrecorded parentage; and *Dendrobium Falconeri*, with over 200 flowers,

for which a Cultural Commendation was awarded.

The Right Hon. Lord Lawrence, Chetwode Manor, Buckingham, showed a specimen *Dendrobium Dalhousieanum*, with bulbs 6 feet 7 inches high. A Cultural Commendation was awarded to the grower, Mr. C. J. Salter.

Pantia Ralli, Esq., Ashted Park, Surrey, showed *Odontioda Sanderæ*, of rich red colour.

Messrs. J. and A. McBean, Cooksbridge, staged *Odontioda Lambeauiana* *Excelsior*, of perfect shape and colour.

Alwyn Harrison, Esq., Watford, exhibited *Odontoglossum Ianthæ*, Harrison's var., and *Lælio-Cattleya Elsie* Lemare, a pleasing flower.

R. A. Rolfe, Esq., showed flowers from crosses raised at Kew, and proving the records of the imported natural hybrids known as *Odontoglossum Coradinei*, and *Lælio-Cattleya amanda*.

AWARDS OF MERIT.

Brassocattlælia Veitchii The Dell variety, from Baron Bruno Schröder (gr. Mr. J. E. Shill).—An elegant hybrid with large flowers of a silvery rose tint. The lip deep rose-purple, with a few white lines.

Lælio-Cattleya Fascinator-Mossiae Burford variety, from Sir Trevor Lawrence, Bart.—A most promising hybrid with thick textured flowers, the tips of the broad petals flushed with purple.

Odontoglossum Phœbe splendens, from Messrs. J. and A. McBean, Cooksbridge.—A very remarkable result in which the flowers are large and broader than many forms of *crispum*.

BOTANICAL CERTIFICATE.

Lissochilus streptopetalus, from Wm. van de Weyer, Esq., Smedmore House, Corfe Castle.—A very interesting species collected in British East Africa at an altitude of 8,300 feet. The plant carried eight tall spikes of yellow flowers with greenish sepals striped with brown.

THE GREAT CHELSEA SHOW.

May 20th, 21st, 22nd, 1913.

Lieut.-Col. Sir George Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), received a Gold Medal for a wonderful display of specimen Orchids, every plant being shown in perfect condition. The varieties of *Miltonia vexillaria* included a dark form with 14 spikes and 59 flowers; *Snowflake*, with 15 spikes and 85 flowers; *Marmorata*, with 14 spikes and 75 flowers; and *virginale* with 29 spikes and 125 flowers. The *Cattleyas*, for which Westonbirt is so famous, included: about two dozen plants of *C. Mossiæ*, bearing together over 200 flowers, and the following named varieties: *Mahomet*, *Parsifal*, *Valhalla*, *Marmian*, and *A. Dimmock*. Twelve excellent plants of *C. Dusseldorfei* *Undine* carried in all 60 flowers; and *C. Mendelii* "*May Queen*," *Schroderæ* "*Geisha*," *C. Skinneri* "*Temple's var.*," were shown in good style. *Lælio-Cattleyas* were also excellent, and comprised *Lygia*, of unknown parentage, fine forms of *luminosa*, *Glaucus*, the Westonbirt variety of *G. S. Ball*, Holford's variety of *Ganymede*, and specimen plants of *Fascinator*. *Cypripediums* were another feature, the best being *Lawrenceanum*, *callosum* *Sanderæ*, *Maudia*, and *Charles Rickman*. An attractive touch of colour was given by several pieces of *Masdevallia Veitchiana*, each carrying about 24 scarlet-red flowers. *Cymbidium* *Alexanderi* and *Pauwelsii* were placed along the top row, and strong plants of *Oncidium Marshallianum* brightened various portions of the group with over two dozen spikes of golden blooms. *Brasso-Cattleyas* included over 20 specimens, many being superb varieties. *Odontoglossum crispum* was represented by two beautiful varieties, known respectively as *Zoroaster* and *Lucy Spinner*. The Westonbirt varieties of *illustrissimum* and *ardentissimum xanthotes* were much admired, and *eximium* *King George* was placed in a prominent position. Touches of red colour were produced by many choice forms of *Odontioda Cooksoniæ*, *O. Charlesworthii*,

O. Vuylstekei, and *O. Bradshawiæ*, the whole making a most beautiful display.

Messrs. Charlesworth and Co., Haywards Heath, were awarded a Gold Medal for a very beautiful exhibit, at each end of which were banks of *Miltonia vexillaria*, and in the centre numerous varieties of *Lælio-Cattleya Fascinator*, which included *cœrulescens*, *nobilior*, and *Queen of Denmark*. The *Odontoglossums* included *Georgius Rex*, a fine hybrid with 30 flowers; *Empress of India*, a large spike of 18 flowers of the amabile section; *eximium*, of rich colour; *Aquitania*; and *ardentissimum xanthotes*. *Lælio-Cattleya Sylvia* var. *Princess Victoria Louise* and *L.-C. Golden Glory* were two of the most distinct hybrids in the group, their bright yellow colour being very attractive. *Cattleya Lawrenceana* "*Mary Regina*" was awarded the Davidson Cup for the finest *Cattleya* in the show. Another speciality was *Miltonia Charlesworthii*, which was granted a First-class Certificate. *Odontiodas* were also good, and included *Queen Mary*, *Charlesworthii*, and *Chantecleer*, all of brilliant colour. Along the top of this group were fine specimens of *Cymbidium* hybrids.

Messrs. Sander and Sons, St. Albans, secured a Gold Medal for an extensive exhibit of hybrids and rare species. In the centre of one bay were several *Odontonias*, the best being *Lælia Sander*, *Roger Sander*, and *Lairesseæ* (*M. Warscewiczii* × *O. crispum solum*). The new *Maxillaria Fletcheriana*, *Odontoglossum Neptune vivicans* (*crispum* × *nebulosum*), and *Cypripedium bellatulum* *Queen of Spain* were much admired. Other specialities included *Oncidium Sanderæ*, *Cymbidium Pauwelsii*, and *Cymbidium Gotianum* *bellissimum*, creamy-white with soft rose flushing. *Brasso-Cattleyas* were in good form, and included the handsome *mirabilis* and *Vilmoriniana Etna* with rich rose flowers. *Miltonia vexillaria* "*Northlight*," *M. Bleuana*, *M. Hyeana*, and *M. St. André* were also included.

Sir Jeremiah Colman, Bart., Gatton Park, received a Silver Cup for a very beautiful

exhibit in which the *Odontiodas* were a special feature. These included *Bradshawiæ* "Gatton Queen," with two spikes each carrying 40 flowers of rosy-scarlet colour, and *Bradshawiæ* "Lady Colman." The interesting *Brasso-Diacrium Colmani*, white with a spotted lip; *Cœlogyne Parishii*; *Odontoglossum Thompsonii*, with a white ground; the rare *O. crispum solum*, and *O. Queen of Gatton* were shown in fine form. *Cypripedium Lawrenceanum Hyeana*, and *Oncidium macranthum* were also staged.

Messrs. Armstrong and Brown, Tunbridge Wells, secured a Silver Cup, for an extensive exhibit, in which were many fine *Miltonia* hybrids. The best included *vexillaria G. D. Owen*, with the crimson blotch well developed; v. *Lambeauiana*, with almost white flowers; *St. André*, and *Hyeana*. About 100 *Odontiodas* were included, these making a very brilliant display of colour. *Cattleya Skinneri alba*, with more than 50 flowers; a very fine form of *Lycaste Skinneri*; a large and richly coloured *Cœlogyne pandurata*, and the new *Odontioda Penelope* were much admired. Along the top row were many fine specimens of *Phalænopsis amabilis*, *Cymbidium* hybrids, and *Cœlogyne Dayana* with many pendulous spikes of flower.

Messrs. Stuart Low and Co., Bush Hill Park, secured a Silver Cup, for an extensive and well-arranged group in which were many superb specimens of *Dendrobium Wardianum*, and arranged on a centre stand well-flowered plants of *Phalænopsis amabilis* and *Renanthera Imschootiana*, the combination of red and white blooms being very effective. The curious *Dendrobium Brymerianum*, the scarce *D. crassinode album*, and *Cymbidium eburneum* were also staged. *Cypripediums* were in good form, and included *Maudia*, *Lawrenceanum Hyeana*, and other albinos. Several healthy plants of *Cypripedium niveum*, the interesting *Masdevallia simula*, the North Indian *Saccolabium gemmatum*, and *Brassia verrucosa*, with its spider-like flowers, were in prominent positions. Specimen plants included *Cattleya Mendelii*, a delicate variety with nine flowers, *Dendrobium*

densiflorum, beautifully flowered, and *D. dixanthum*, with bright orange-yellow blooms. Many botanical varieties were also included.

Messrs. J. and A. McBean, Cooksbridge, staged a beautiful exhibit of *Odontoglossums*, the varieties of *crispum* being specially fine. Other *Odontoglossums* included *Jasper*, *Thompsonianum*, the rare *Sceptrum aureum*, *luteopurpureum Vuylstekeanum*, with four fine spikes of flower, *crispum xanthotes Charlesworthii ardentissimum* "Agnes," a very fine white variety, and *crispum Rosaline*, a spotless form. *Cattleya Mossiæ* was a special feature, many beautiful varieties being shown in perfection. *C. Mendelii* included a number of dark-purple lipped forms, and there were distinct varieties of *Lælio-Cattleya Ganymede*, *Helius*, and *G. S. Ball*. *Oncidium McBeanianum* (*macranthum* × *superbiens*), *O. superbiens* and a wonderful variety of *macranthum hastiferum* carried numerous flowers. *Odontiodas* were represented by some 20 plants of superb varieties of *Charlesworthii*, and some 60 plants of *Lambeauianum*, all of good shape and colour. The new *Brasso-Cattleya Mendelosa* (*B. nodosa* × *C. Mendelii*), several distinct varieties of *Cymbidium Pauwelsii* and *Gottianum*, together with many fine varieties of *Miltonias*, the latter including *Bleuana*, *vexillaria G. D. Owen*, and *Phalænopsis McBean's* var.

Messrs. Mansell and Hatcher, Ltd., Rawdon, were awarded a Silver Cup for an elegant display of various Orchids, including a richly blotched form of *Odontoglossum crispum* called *Royal Gem*; *crispum eboriacum*, of fine *Pacho* type; many grand forms of *Cattleya Mendelii*, *C. Mossiæ*, and *C. Dusseldorfei Undine*. *Lælio-Cattleya* were specially good and included *Hyeana*, *Eudora*, *Fascinator*, and *callistoglossa*. *Odontoglossum citrosmum album*, nice batches of *Cypripedium niveum*, and several good forms of *Miltonia vexillaria*. A pretty effect was given by many well-flowered plants of *Oncidium pulchellum*. *Cattleya Empress Frederick alba* secured a First-class Certificate, and *Miltonia vexillaria chelseensis* was beautifully flowered.

Messrs. J. Cypher and Sons, Cheltenham,

received a Silver Cup for a tastefully-arranged group in which were strong plants of *Dendrobium Thwaitesiae* Veitch's var., with numerous flowers; several batches of *Cypripedium callosum* Sanderæ. *Cymbidium Alexanderi*, a fine variety of *Maxillaria Sanderiana*, bright *Oncidiums*, several well-flowered *Brasso-Cattleyas*, many flowered plants of *Masdevallia Veitchiana*, *Vanda teres*, *Epidendrum O'Brienianum*, *Lælio-Cattleya Wellsiana*, and *L.-C. Hyeana*, with a large number of well-developed flowers.

E. H. Davidson, Esq., Twyford, received a Silver Cup for a neat exhibit of *Lælio-Cattleya Aphrodite*, the pretty *Trichopilia Backhouseana*, good varieties of *Cattleya Mendelii*, *Vanda teres*, and blotched *Odontoglossums*.

Messrs. Hassall and Co., Southgate, were awarded a Silver-gilt Medal for a good exhibit of *Odontoglossums* and *Cattleyas*, the latter including *Schröderæ alba*, and *Skinneri alba* with 22 flowers. *Dendrobium Bronckhartii*, several *Odontiodas* of excellent colour, and *Lælio-Cattleya* G. S. Ball, with coppery-yellow blooms, were well staged. *Odontoglossum Aireworth*, the yellow *O. luteopurpureum Vuylstekeanum*, and *Miltonia vexillaria* were also noticed. A good form of *Cattleya Dusseldorfei Undine* was in a prominent position.

Mr. S. Flory, Twickenham, received a Silver Flora Medal for a nice group, in which we noticed many fine forms of *Cattleya Mendelii*, the white *Lælia purpurata* "Queen Alexandra," the elegant *Cypripedium Rothschildianum*, *C. Olivia*, and a pretty group of *Anætochili*.

Mr. Harry Dixon, Spencer Park Nursery, Wandsworth Common, was awarded a Silver Banksian Medal for a neat group containing a specimen *Miltonia vexillaria*, a distinct variety of *Cattleya Mossiæ*, with purple-splashed petals, *C. intermedia alba*, the elegant *Cœlogyne pandurata*, *Cymbidium insigne*, *Brasso-Lælia Jessopi*, with orange-yellow flowers, and a good form of *Odontioda Charlesworthii*.

Mr. C. F. Waters, Deanlands Nursery,

Balcombe, secured a Silver Banksian Medal for a selection of *Odontoglossum crispum*, *Cattleya Mossiæ Reineckiana* C. Mendelii, a good form of *Cypripedium bellatulum*, and *Miltonia vexillaria*.

W. P. Burkinshaw, Esq., Hessle, Hull, showed *Miltonia Bleuana* Hessle variety, with a dark ray-like disc, and *Cattleya Lueddemanniana Schröderiana*, with white sepals and petals.

Mr. John Evans, Key Green, Congleton, Cheshire, exhibited *Odontoglossum Ruby Gem*, a large flower with reddish-purple blotches and a marginal line of the same colour; and *O. Evansiæ*, a grand hybrid with a spike of 16 large flowers handsomely blotched.

Mons. Jules Hye de Crom, Ghent, staged *Miltonia Hyeana Eureka*, a large white flower, flushed with rose, and having a dark ray-like blotch of crimson-purple on the crest.

AWARDS.

MEMBERS of the Committee present:—Sir Harry J. Veitch (in the chair), Mr. Jas. O'Brien (hon. sec.), Sir Jeremiah Colman, Bart., Messrs. Gurney Wilson, H. G. Alexander, F. Sander, J. Shill, J. Cypher, H. J. Chapman, F. M. Ogilvie, R. G. Thwaites, J. S. Moss, W. H. Hatcher, S. Flory, Stuart Low, W. Cobb, A. Dye, W. P. Bound, Wilson Potter, C. J. Lucas, R. Brooman-White, W. H. White, E. Ashworth, F. J. Hanbury, W. Bolton, de Barri Crawshay, and J. Gurney Fowler.

FIRST-CLASS CERTIFICATES.

Odontoglossum Othmarschen (parentage unknown), from Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill).—A very beautiful hybrid, with large flowers almost covered with claret-purple blotches.

Lælio-Cattleya Britannia Westonbirt variety (*L.-C. Canhamiana* × *C. Warscewiczii*), from Lieut.-Col. Sir George Holford, K.C.V.O. (gr. Mr. H. G. Alexander).—This plant carried seven immense flowers, with rose sepals and petals, and deep purple labellum.

Lælio-Cattleya Sylvia "Princess Victoria Louise" (*Ascania* × *Hippolyta*), from Messrs. Charlesworth and Co.—A very fine result. Flower of good shape, with canary-yellow

segments, the broad lip veined with dark crimson. One of the gems in the show.

Miltonia Charlesworthii, from Messrs. Charlesworth and Co.—A very handsome seedling, somewhat similar to *vexillaria* G. D. Owen, the richly-coloured blotch being very attractive and likely to still further improve as the plant gains strength.

Lælio-Cattleya Frederick Boyle "Gatton variety" (*L. anceps alba* × *C. Trianae*), from Sir Jeremiah Colman, Bart., Gatton Park.—A great improvement on previous forms of this white-flowering hybrid.

Odontoglossum Queen of Gatton (*triumphans* × *percultum*), from Sir Jeremiah Colman, Bart.—A very fine hybrid in which the large golden-yellow flowers are handsomely blotched with red-brown.

Odontioda Chantecleer "Orchidhurst variety" (*O. Cooksoniae* × *C. Nœzliana*), from Messrs. Armstrong and Brown, Tunbridge Wells.—A particularly fine result in which the broad petalled flowers are of a brilliant and rich scarlet-red.

Cattleya Empress Frederick *alba* (*aurea* × *Mossiae Reineckiana*), from Messrs. Mansell and Hatcher, Rawdon.—A pleasing hybrid with white sepals and petals, the broad and open labellum marked with bright orange-yellow.

AWARDS OF MERIT.

Odontoglossum illustrissimum "Westonlirt variety," from Lieut.-Col. Sir George Holford.—A good variety with large flowers, having solid blotches of claret-purple, the tips of segments blush-white.

Lælio-Cattleya Ganymede "Holford's variety" (*Latona* × *Schröderæ*), from Lieut.-Col. Sir George Holford.—A pretty hybrid with two spikes carrying a total of 14 orange-red flowers.

Odontoglossum Georgius Rex, from Messrs. Charlesworth and Co.—One of the best hybrids.—See illustration.

Odontioda chelseænsis "St. Fuscien" (*C. vulcanica* × *crispum*), from Mr. H. Graire, Amiens.—A very pretty result. The plant carried a spike of 20 large flowers, rosy-lilac in colour, the tips of segments creamy-white.

Oncidioda Cooksoniae illustris (*O. macranthum* × *C. Nœzliana*).—A very fine variety, with large flowers of rich scarlet-red.

Odontonia Lælia Sander (*Miltonia Warscewiczii* × *Odontoglossum amabile*), from Messrs. Sander and Sons.—Flowers evenly set, the labellum well developed, with a large purple-red blotch, white at the apex.

Brasso-Cattleya Vilmoriniana "Etna," from Messrs. Sander and Sons.—A charming hybrid with a large rose flower, the broad lip fringed at the edge, the throat orange-yellow.

Brassocattlælia Excelsior, from Messrs. Armstrong and Brown.—See "New Hybrids."

Odontoglossum eximium *Armstrongiae*, from Messrs. Armstrong and Brown.—The large white flower handsomely blotched with violet-purple. One of the distinct varieties.

Lælio-Cattleya Aphrodite splendens, from Messrs. Armstrong and Brown.—An elegant variety with the dark lip prettily crimped at the margin.

Cattleya Mendelii "May Queen," from Messrs. J. and A. McBean.—A handsome variety with white sepals and petals and the broad lip rich purple-mauve.

Oncidium McBeanianum (*superbiens* × *macranthum*), from Messrs. J. and A. McBean.—See "New Hybrids."

Cymbidium Gottianum superbum (*eburneum* × *insigne*), from Messrs. J. and A. McBean.—A large, bold form, creamy-white, with the lip crimson spotted.

Odontioda Charlesworthii *Perfection* (*O. Harryanum* × *C. Nœzliana*), from Messrs. J. and A. McBean.—Large flowers, good shape, rich red colour.

CULTURAL COMMENDATIONS

To Mr. H. G. Alexander, Orchid grower to Lieut.-Col. Sir George Holford, for *Miltonia vexillaria* *Snowflake*, with 15 spikes, 85 flowers; and for *M. vexillaria virginale*, with 29 spikes, 125 flowers. Also for *Cattleya Mossiae*, carrying three spikes with six, six and three flowers respectively.

To Mr. J. Davis, Orchid grower to J. Gurney Fowler, Esq., for *Sobralia macrantha alba*, with numerous flowers and buds.

MANCHESTER ORCHID SOCIETY.

April 17th, 1913.

MEMBERS of the Committee present: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, J. Bamber, A. Hanmer, W. Hatcher, A. J. Keeling, J. Lupton, D. McLeod, W. Morgan, C. Parker, F. K. Sander, H. Thorp, A. Warburton, E. H. Davidson, and H. Arthur (Secretary).

A Gold Medal was awarded to Z. A. Ward, Esq., Northenden, for a fine group of *Odontoglossums*.

Silver-gilt Medals were granted to R. Ashworth, Esq., Newchurch; and A. Warburton, Esq., Haslingden.

Large Silver Medals were awarded to Col. J. Rutherford, M.P., Blackburn; and W. R. Lee, Esq., Heywood.

A Silver Medal was awarded to J. Lawson, Esq., Sharples, Bolton; and Bronze Medals to Rev. J. Crombleholme, Clayton-le-Moors; and Messrs. A. J. Keeling and Sons, Bradford.

Other exhibitors included H. Arthur, Esq., Blackburn; E. H. Davidson, Esq., Twyford; and Messrs. Armstrong and Brown, Tunbridge Wells.

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontoglossum Wm. Thompson and *Odontioda* Wm. Thompson, from Wm. Thompson, Esq.

Brassocattlælia King Emperor (L.-C. *callistoglossa* × B.-C. *Digbyano-Mossiæ*), from W. R. Lee, Esq.

Odontoglossum crispum "Militaris," from A. Warburton, Esq.

Odontoglossum crispum "Orchid Dene," from E. H. Davidson, Esq.

AWARDS OF MERIT.

Odontioda Bradshawiæ "Hestia," and *Evadne*, from W. R. Lee, Esq.

Odontioda Edna, and *Lælio-Cattleya* Mrs. Temple "Ashlands var.," from R. Ashworth, Esq.

Odontoglossum crispum "J. Howes," from Wm. Thompson, Esq.

Odontoglossum Dreadnought, from Z. A. Ward, Esq.

Odontoglossum Aurora, and *Od. crispum rotundum*, from E. H. Davidson, Esq.

Dendrobium Harveyanum, from Messrs. A. J. Keeling and Sons.

BOTANICAL CERTIFICATE, 2ND CLASS.

Epidendrum Lambda, from Messrs. A. J. Keeling and Sons.

May 1st, 1913.

MEMBERS of the Committee present: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, J. Bamber, J. Cypher, J. Evans, Dr. Hartley, A. J. Keeling, J. Lupton, D. McLeod, W. Morgan, C. Parker, A. Warburton, E. H. Davidson, and H. Arthur (Secretary).

Silver Medals were awarded to Col. J. Rutherford, M.P., Blackburn; Messrs. Cypher and Sons, Cheltenham; Messrs. A. J. Keeling and Sons, Bradford; and Mr. D. McLeod, Chorlton-cum-Hardy.

A Bronze Medal and Cultural Certificate was awarded to O. O. Wrigley, Esq., Bury, for three plants of *Anguloa Clowesii*, one of which carried 7 flowers.

AWARDS.

FIRST-CLASS CERTIFICATES.

Brassocattlælia Triune "Gratrixiæ," a magnificent flower, from Mrs. Gratrix.

Odontoglossum Jasper "Orchid Dene," a large well spotted flower with rosy ground; *Odontoglossum* Aireworth "Borlases," one of the finest forms seen; both from Mr. E. H. Davidson.

AWARDS OF MERIT.

Cattleya Enid "Illustris," and *Cattleya Mendelii* "Regina," both the property of J. Leemann, Esq.

Lælio-Cattleya Duchess of Connaught (L. *harpophylla* × C. *Schröderæ*), the property of Mrs. Gratrix.

Vol.
3.

THE
ORCHID WORLD.

No.
10.

JULY, 1913.

NOTES.

CHELSEA AWARDS.—The following amendment has been made by the Council of the Royal Horticultural Society in their list of awards given at the Chelsea Show:—Silver-gilt Cup in lieu of Silver Cup to Sir Jeremiah Colman for Orchids.



MR. J. GURNEY FOWLER.—Orchidists will be interested to hear that Mr. J. Gurney Fowler, the Treasurer of the Royal Horticultural Society and Chairman of the Orchid Committee, has purchased an estate at Pembury, near Tunbridge Wells, Kent, where a very suitable atmosphere for Orchid culture exists. The entire collection and some of the greenhouses will shortly be removed from South Woodford to the new address.



ORCHIS HIRCINA.—Two strong flowering plants of this rarity, commonly known as the Lizard Orchid, were exhibited at the Royal Horticultural Society, June 17th, 1913, by Mr. Duncan V. Pirie, M.P., Aberdeen, who obtained them from his garden at Château de Verennes, Anjou, France, where they were found growing on the bank of the river Loire. This species was first described in England in the year 1641, since when plants have occasionally been found in various districts of Kent, Surrey and Sussex, although more than once it has been thought to have become extinct in this country. An interesting account of its discoveries may be found in

VOL. III.

the ORCHID WORLD, August, 1911. Botanists have also described this species under the names *Aceras hircina* and *Himantoglossum hircinum*.



LÆLIO-CATTLEYA MARTINETTI.—This very distinct hybrid between *L. tenebrosa* and *C. Mossiæ* will always attract attention by reason of its rich, coppery-red colour. Originally flowered in 1899, many subsequent batches of seedlings have been raised to supply the demand. One of the prettiest and best coloured forms has recently flowered in the collection of Sir Mervyn E. Buller, Bart., Broomhill, Spratton, Northampton, whose plants are cultivated by Mr. J. B. Dovey with considerable care. The specimen, bearing the varietal name *Cupatria*, carried five flowers, of good shape, the sepals and petals coppery-red, the labellum crimson-purple, handsomely veined with dark crimson.



ORCHID CATALOGUE.—Messrs. Stuart Low and Co., Bush Hill Park, Middlesex, have just issued an attractive catalogue of Orchids. Consisting of 64 pages, with many illustrations, it will be found of service to all interested in the cultivation of these plants. A welcome inclusion is a series of lists of plants, prepared specially for beginners. Collection No. 1 is of cool house *Odontoglossums*; No. 2, *Cattleyas* and *Lælias* suitable for a minimum winter temperature of

50 degrees; No. 3, winter flowering *Cypripediums*; No. 4, representatives of dissimilar genera, to bloom in succession in their respective seasons; No. 5, general collection suitable for a cool house having a minimum night temperature of 42 degrees; No. 6, selected Orchids for an intermediate house with a minimum night temperature of 50 degrees; No. 7, Orchids suitable for cultivation in a stove or warm house; and No. 8, hybrid Orchids for a house where the winter minimum temperature is 50 degrees.



IRREGULAR PELORIA.—Mr. E. H. Davidson, of Twyford, Berks., has recently flowered a very uncommon, yet nevertheless pretty, form of *Cattleya Mossiæ* called Golden Ray, in which the broad petals are streaked with yellow in similar fashion to that colour usually seen on the labellum and in the throat of the same species. It is a well-known fact that the inner whorl of perianth segments is composed of the two lateral petals and a median one which, by its alteration in shape, is termed the labellum. A common event is for this labellum to revert to its original, or flat, shape, quite similar to the two lateral petals; the flower assumes a regular condition, and such events are termed regular peloria. But there is another method, much more rare, by which the three segments of the inner whorl may become alike, and this is by the petals assuming the form of the labellum. The flower thus becomes balanced, or regular, by the addition of other irregular segments. For examples such as these the term irregular peloria is used. It is of this later class that Mr. Davidson's specimen belongs, for the petals have attempted to form other labellum-like segments by copying the yellow markings of the throat and lip, although they have not gone so far as to acquire the particular convolute shape which distinguishes the labellum from the other segments. The attempt, interesting as it is, may best be described as incomplete irregular peloria. This variety appears constant, Mr. Davidson having had similarly marked flowers during previous years.

VANILLA CULTIVATION.

IN view of recent efforts to extend the Vanilla industry in the West Indies, the Agricultural Department of St. Vincent imported a number of plants of *V. planifolia* from the Seychelles. Some of these were distributed to an estate situated at an elevation of 1,500 feet in the mountains, where the average rainfall is over 120 inches.

The *Agricultural News* of the West Indies (XII., No. 286) gives some interesting particulars of how Mr. Huggins has secured success in their treatment:—"The lands are surrounded by high hills covered with forest. The Vanilla vines are planted in small sheltered clearings in the forest where the soil is of good depth, light, and rich in vegetable matter. After many trials in the endeavour to find a satisfactory support for the vines, it was found that they thrived well on stems of the tree fern (*Cyathea arborea*)."

The usual methods for the pollination of the flowers and the cultivation and pruning of the vines was adopted, although it is in the curing of the pods that there appears to be some difference from former ways. The method of Mr. Huggins is stated as follows:—"After being drained, the pods are wrapped in the leaves of a native large-leaved aroid called 'Chainey,' and placed in a box for four or five days to ferment. When the pods have assumed a soft brown maroon colour they are taken out and placed on leaves in the drying house. This drying house is well ventilated, and arranged with shelves covered with $\frac{1}{2}$ -inch mesh galvanised wire netting. The pods are spread out in a single layer and constantly 'smothered' and turned until they assume a very dark brown colour, silky feel, and possess a supple consistency. They are then sorted into lengths and grades and packed in bundles in tins."

Mr. Huggins states that quite 25 per cent. of his pods split in curing. This he considers to be due, in a large measure, to the difficulty of picking each pod at just the right stage of ripeness.

LISSOCHILUS HORSFALLII.

In the ORCHID WORLD of February, 1913, page 100, appear two photographs and a description of this Orchid which I grew on my veranda in Uganda. I described how this plant, which in its wild state is known only as a swamp Orchid, grew so luxuriantly under very different conditions. The plant sent up a further and larger spike in November last which developed 54 flowers.

It occurred to me then that it would be interesting to lift the plant and observe its root system, more particularly for the benefit of those who are endeavouring to grow the plants of this genus in England. The two photographs show what a vigorous root system it has.

To cultivators in England this should suggest a drastic change in the treatment hitherto given these plants. In all the attempts I have seen at the cultivation of *Lissochilus* the same mistakes have been



Lissochilus Horsfallii, the plant after removal.



Lissochilus Horsfallii, the root system.

made, *i.e.*, the plants were grown in an atmosphere too moist and shady, in receptacles not nearly large enough, and in unsuitable compost.

The *Lissochilus* tubers in their wild state are found 9-12 inches below the surface of the ground. The soil is a strong yellow loam. The stronger kinds, such as *Horsfallii* and *giganteus*, have roots three feet long, and thicker than a lead pencil. Imagine such plants being expected to develop in leaf soil and moss in a pan 4 inches deep! And yet this is what I saw recently in a famous collection.

Very little success has yet been met with in the cultivation of this beautiful African genus, but I feel certain success would follow more rational treatment. These plants do not want the compost and damp, shady conditions which are found so beneficial to epiphytic Orchids, but plenty of root-room in good soil with almost full sunshine. Success may then be reasonably expected.

Ernest Brown, F.L.S., Cranleigh, Surrey.

LÆLIA JONGHEANA.

LÆLIA JONGHEANA was discovered by a man named Libon, who was sent out to Brazil by M. de Jonghe, of Brussels. The date seems rather uncertain, although Reichenbach, when he described the species from a plant which flowered at Paris in 1872, remarked, "If I mistake not, I remember to have seen the plant in 1856 with M. de Jonghe.

In the year 1873 it flowered with Messrs. Veitch and Sons, and was figured in the *Botanical Magazine*, t. 6,038. During the next ten years it was represented in several collections, but appears to have become gradually lost until 1898, when Messrs. Sander and Sons imported it as *Lælia* species. The following year one of the plants from this importation flowered with Messrs. A. J. Keeling and Sons, and proved to be *Lælia Jongheana*.

Mr. E. Kromer, an authority on Brazilian Orchids, states that this species comes from Central Brazil, from the State of Minas Geraes, where it grows on trees at an elevation of 2,000 feet. Cool treatment is eminently suitable, the *Odontoglossum* house being quite warm enough during the summer months.

The flowers, which are produced without a sheath, are borne one to three on short stalks, and are of a bright rose-purple colour. The lip much crisped and with numerous bright yellow ridges which give a very distinct appearance to the flower. The flowering season is early spring. The species does not vary very much in colour, two notable exceptions being *L. Jongheana Kromeri*, in which the flowers are very dark, and *L. Jongheana Ashworthiæ*, in which the flowers are silvery-white. A distinct variety having the petals mottled with a darker tint has recently appeared in the collection of Capt. Robert Twiss, Bird Hill, Limerick.

Hybrids of *Lælia Jongheana* are not so numerous as those from other species of longer cultivation. *Lælio-Cattleya Baroness Schröder* (*Trianae* × *Jongheana*), which first flowered in August, 1892, is the only one from

the early collected plants. All the remainder are from plants imported by Messrs. Sander and Sons, and other collectors.

The following is believed to be a complete list:—

Lælia Gwennie (*J. × Cowanii*), raised and flowered by Mr. R. G. Thwaites, February, 1904. Flowered in the remarkably short time of two years and six months from the date of seed sowing.

L. De Geestiana (*J. × flava*), M. de Wavrin, July, 1904. The alba variety flowered with Mr. N. C. Cookson, November, 1905. It had white sepals and petals, and was the result of using *L. Jongheana alba*.

L. Daphne (*J. × tenebrosa*), Sir George Holford, July, 1906.

L. Sidneana (*cinnabarina × J.*), Mr. H. A. Tracy, September, 1907.

L. Adrienne (*J. × præstans*), M. de Wavrin, December, 1907.

L. lynwoodensis (*J. × harpophylla*), Mr. J. J. Neale, February, 1910.

L. chamonicensis (*purpurata × J.*), Mr. E. F. Clark, June, 1910.

L. Jessica (*J. × Coronet*), Mr. E. F. Clark, April, 1911.

Lælio-Cattleya Baroness Schröder (*Trianae × J.*), Baron Schröder, August, 1892. Interesting for being the first *Jongheana* hybrid, and remaining the only one for a period of eleven and a half years.

L.-C. Gamma (*J. × L.-C. Ernestii*), Mr. N. C. Cookson, February, 1905.

L.-C. Sunset (*Percivaliana × J.*), Sir George Holford, September, 1906.

L.-C. Olivia (*Schröderæ × J.*), Sir George Holford, March, 1907.

L.-C. Daffodil (*J. × L.-C. Mercia*), Messrs. Armstrong and Brown, March, 1908. *L. Jongheana alba* was used in this instance, resulting in a very bright yellow flower.

L.-C. Pizarro (*J. × aurea*), Sir George Holford, March, 1908.

L.-C. Oberon (*Mendelii × J.*), Sir George Holford, June, 1909.

L.-C. Wilsonii (*J. × Hardyana*), Messrs. Armstrong and Brown, April, 1910.

L.-C. Nereus (*J. × L.-C. Pallas*), Messrs. Armstrong and Brown, June, 1911.

Sophro-Lælia grangeifieldensis (S. grandiflora × J.), Messrs. A. J. Keeling and Sons, December, 1905.

S.-L. Phroso (J. × S.-L. Orpetii), Sir George Holford, July, 1906.



Aerides Sanderiana and Vanda Sanderiana, a wonderful specimen.

VANDA AND AERIDES.

THIS highly interesting and unique illustration shows *Vanda Sanderiana* and *Aerides Sanderiana* growing together in one huge mass, just as they were discovered when in full bloom by

VOL. III.

Mr. Micholitz, the well-known collector for Messrs. Sander and Sons, St. Albans.

These wonderful specimens were found in their native habitat, growing on the *Rhizophora*, that marvellous mangrove tree, of which the branches emit roots into the surrounding mud, and thus perform a most

important part in the economy of Nature by wresting annually from the ocean fresh portions of land. This is effected by the germinating seeds, which do not leave the tree until they have actually formed small trees in themselves. These, with their ready prepared roots, then drop into the water and take possession of the mud in advance of their parent stems.

Some idea of the means that should be employed to successfully cultivate these fine Orchids may be gathered by studying the conditions under which they flourish in their native habitat. Suspended among the branches of the *Rhizophora* trees, with their roots entwined around the stems and branches for security, there are many other free roots apparently seeking an object to which they may also cling. Underneath this mass of vegetation the swampy ground is more or less flooded with salt water during the growing season.

Overhead the sun shines fiercely, causing a reeking humidity. The rainfall and sunshine is about four times as great as is usual in Great Britain, while the shade temperature by day is from 70-90 degrees Fahr., falling very considerably at night, thereby causing an immense amount of moisture in the form of thick vapour, which at higher elevations becomes almost impenetrable, with a very chilly atmosphere.

The flowers of these two Orchids are well known; they are, and will remain, quite sensational, for it seldom falls to the lot of any one man to introduce the "facile princeps" of two such splendid genera. The photograph does not show either of them at their best, the spikes of the *Aerides* appear short, whereas under cultivation branching racemes have been produced upwards of two feet in length, the individual blossoms being very large—the largest in the genus—creamy-white, tipped with magenta, the side lobes clear yellow, frilled at the edges, the column resembling a bird's head. The flowers have a seductive honey-like odour, which is copiously emitted at night.

The history of *Vanda Sanderiana* has been already written (ORCHID WORLD, Vol. II,

p. 53), and its beauty so well known that we need not again go into a description of this king of the Vandas. What is really wanted is the knowledge of how to grow, and keep growing, these exceptionally fine Orchids. We have advanced greatly during the last few years in cultivating to perfection many genera and species, but there is still a great field for clever growers to work in. Let them take the subjects of our photograph, which is reproduced to show how luxuriantly these species grow in their native home, also *Vanda Hookeriana*, *Bollea cœlestis*, *Arachnanthe Cathcartii*, *Coryanthes macrantha*, *Cypripedium Stonei*, *Oncidium crispum grandiflorum*, *Grammangis Ellisii*, *Phaius tuberosus*, and other similarly magnificent though difficult Orchids to grow, and cultivate them into specimens. If these could be kept growing it would be a great achievement, and well worthy of our best growers greatest efforts. As it is, these splendid Orchids come into Europe on rare occasions, are seen once or twice, and then lost and almost forgotten. Great as our advance in cultivation has surely been, there is undoubtedly much more still to accomplish.

NEW ORCHIDS.

A RECENT issue of the *Kew Bulletin* contains the 40th Decade of new Orchids, with Latin descriptions by Mr. R. A. Rolfe. The following particulars are given:—

STELIS BARBATA, from Costa Rica.—Flowered at Kew in November, 1912. The flowers are ochreous green, with numerous rather long purple hairs on the sepals, a broad red-purple blotch on the upper part of the petals, and a smaller blotch on the front lobe of the lip.

ERIA (CYLINDROLOBUS) TRILAMELLATA, from Siam.—Sent to Kew from Bangkok and flowered in the collection, February, 1913. The bracts are light emerald-green, and the flowers white, with a light brown front lobe and a very hairy brown keel in front. The short lateral keels and base of the lip are also

stained with the same colour, and there is a round yellow blotch on the base of the column and a brown papillose blotch on the front of the column foot.

ACANTHOPHIPPIUM SINENSE, from the Swatow District of China.—Collected on the Han Expedition, April, 1909.

CYCNOCHES COOPERI, from S. Peru.—Flowered with Messrs. Sander and Sons, January, 1913, when it received an Award of Merit from the Royal Horticultural Society. The plant is now in the collection of the Rev. J. C. B. Fletcher, Mundham Vicarage, Chichester, who forwarded materials for description and preservation. The sepals and petals are light mahogany-brown, the side lobes of the lip whitish, and the column dull purple. The female flowers are not yet known.

ONCIDIUM BIDENTATUM, from Ecuador.—Sent for determination by Mrs. Lipscomb, Wimbledon, who received it from her son when residing in Ecuador. The flowers are yellow, with a large amount of brown on the sepals and petals, and on the basal half of the lip.

DENDROCOLLA PRICEI, from Formosa.—Sent to Kew in 1912 by Mr. W. R. Price, and flowered in the collection in February of the following year. The flowers are semi-pellucid white, with transverse brown bars on the sac of the lip, two orange blotches at the inner angles of the side lobes, and an orange apex to the crest.

CLEISOSTOMA ACUMINATUM, from Formosa, whence it had been brought by Mr. H. J. Elwes, and flowered in his collection at Cheltenham, February, 1913.—The sepals and petals are yellowish-green, with one or two large transverse purple blotches, and the lip cream-white with a little yellow at the junction of the front and side lobes. The description is made from an inflorescence and a photograph of the plant.

MYSTACIDIUM GRACILLIMUM, from Uganda.—Flowered in the Royal Botanic Gardens, Glasnevin, in December, 1911, and again a year later. The flowers are semi-pellucid white.

GLOSSULA CALCARATA, from S. China.—

Originally collected on the Lo-fau-shan Mountains by Mr. C. Ford, and distributed as *Glossula tentaculata*, Lindl., and afterwards in Hongkong by Dr. E. A. Voretzsch. The spur is clavate, and three times as long as *G. tentaculata*, to which it bears a general resemblance in other respects. The stigmatic processes are not clavate, as in *Habenaria*.

NEW HYBRIDS.

LÆLIO-CATTLEYA BASKETTÆ.—A delicately tinted flower comes from the collection of Mr. Eustace F. Clark, Evershot, Dorset. The parents are *L.-C. eximia* (Warneri × *purpurata*) × *Schröderæ*, and the seedling was purchased at the sale of Mr. Larkin's plants, 1911. In general, the flower much resembles the well-known *L.-C. Fascinator* (*purpurata* × *Schröderæ*), the Warneri having only slight influence, but it may be more apparent in other varieties from the same seed-pod. It is worthy of note that in this hybrid the fine variety of *Schröderæ* called *The Baron* was used.

LÆLIO-CATTLEYA HIBERNIA.—Messrs. Sander and Sons have produced a very effective and distinctly coloured hybrid by crossing *C. Schröderæ* with *L.-C. blechleyensis* (*tenebrosa* × *Warscewiczii*). The *tenebrosa* influence has imparted a rare copper colour tint to the otherwise rose-coloured flower, the labellum, especially the throat, being rather darker than other parts.

LÆLIO - CATTLEYA CALEDONIA.—*C. Mendelii* crossed with *L.-C. blechleyensis* has given a very pretty result, in which the petals are flushed with purple along their median line, and the labellum much crisped, and of rose-purple colour. Raised by Messrs. Sander and Sons, St. Albans.

LÆLIO-CATTLEYA LADY ROBERTS.—A very handsome hybrid was shown by Mr. Francis Wellesley at the Royal Horticultural Society, June 3rd, 1913. The parents are *L.-C. Euphrosyne* (*Dayana* × *Warscewiczii*) and *C. aurea*, resulting in a large and rich rose-purple flower, the broad labellum dark crimson, veined with gold.

ODONTOGLOSSUM DEMA.—This hybrid was obtained by crossing *Thompsonianum* with *cirrhosum*. In many ways it closely resembles the former parent, but the influence of *cirrhosum* has widened the flower and imparted a twisted nature to the ends of the segments. Shown by Mr. H. S. Goodson, Royal Horticultural Society, June 3rd, 1913.

LÆLIO-CATTLEYA EDITH BLYTH.—A useful addition to the bright coloured *Lælio-Cattleyas* has been produced by crossing *L. Nora* (*cinnabarina* × *xanthina*) with *L.-C. Cappei* (*cinnabarina* × *gigas*). Sepals and petals bright orange-buff; the broad, crisped lip rich crimson; column white slightly tinged with rose at the base. Raised by Mr. C. Alwyn Harrison, Ventimiglia, Italy.

LÆLIO-CATTLEYA WHITEÆ.—This hybrid is the result of crossing *C. Mossiæ* with *L.-C. Vinesiæ* (*tenebrosa* × *Hippolyta*). The sepals and petals have a distinct reddish tinge, no doubt derived from the *cinnabarina* ancestry, with a bluish-mauve median area, especially down the petals. The lip has the central area deep crimson-purple, with darker veins radiating more or less as in *Mossiæ*, and is somewhat incurved at the edge and apex. The throat is orange with reddish veining. Raised by Mr. Eustace F. Clark, Evershot, Dorset.

SOPHROCATTLÆLIA VENUS.—Several plants have recently flowered from a batch of seedlings raised by Messrs. Hassall and Co., Southgate, and resulting from *C. Mendelii* crossed with *S.-L. Psyche* (*S. grandiflora* × *L. cinnabarina*). The unexpected result was a yellow tint on the flowers when they first opened, but this gradually passed away, leaving the sepals and petals pure white and the labellum violet-purple. The segments of the flowers were rather narrow.

ONCIDIODA BELLA.—An interesting addition to the *Oncidioidas* has been raised by Messrs. Charlesworth and Co. The parents are *C. Noëzliana* and *O. Marshallianum*, the latter species greatly predominating especially in the yellow colour, which remains almost unaltered. The petals are blotched on the centre with light brown, and there are numerous spots near the margin. A

curious feature is the prominent development of the lateral lobes, or side wings, of the labellum.

CATTLEYA CITRINA.

NO one in these days will fail to recognise *Cattleya citrina*, either in the imported state or when in flower, for the whitish membrane covering the ovate bulbs, and the curious habit which it has of producing its flowers in pendulous style, are very distinctive features. So far back as the year 1615 we find Hernandez describing this plant under the wonderful name *Corticoatzontecoxochitl*. The present name, *Cattleya citrina*, is that of Lindley, and dates from 1824, although it was not until 1838 that this Mexican species was introduced to the famous gardens at Woburn Abbey, since when it has remained a favourite with all amateur collectors.

To see for the first time this plant in flower is to obtain a real impression of all that has been written regarding the epiphytic nature of an Orchid. Surely there can be nothing more interesting to the amateur than to see this plant growing on nothing else than a block of wood, and this suspended in mid-air to allow the golden-yellow flowers to show themselves in their fullest beauty and quaintness.

But, alas, there is one great trouble attached to the cultivation of this plant—it cannot be kept growing for many years. Despite the most careful attention and every method of cultivation the imported plants gradually lose their native vigour and slowly decline, becoming at last total wrecks. Surely the man who can discover the secret of success in the culture of *Cattleya citrina* is worthy of every reward.

There is, however, some satisfaction to be obtained from the fact that importations of the plants continue to arrive, and that up to the present time there has been little trouble experienced in obtaining sufficient supplies, but how long this scouring of the plants'

native home is able to exist is more than we can say. Possibly, under the correct climatic conditions, plants grow with great rapidity in their native home, and all we can do is to hope that such may continue to be the case. To be deprived of this elegant and really Orchidaceous looking plant would indeed be one of the greatest losses ever sustained by amateurs. A large mass makes a fine exhibition plant, especially when placed on the stem of a tree fern, which should be about two feet high, and placed in a pot with the common, or some other, *Selaginella* growing on the stem of the fern. It was in this method that Mr. B. S. Williams, more than thirty years ago, showed at the Amsterdam International Exhibition a plant with about twenty flowers on it, when it was very greatly admired.

In Robert Warner's "Select Orchidaceous Plants," 1881, Series III., Plate XVIII., there is an excellent coloured figure of this plant carrying four flowers, and, in the adjoining text, is the remarkable statement:—"We should like to see this species fertilised with some of the more showy kind, such as *C. Mossiæ*, *C. Mendelii*, etc., for we have no doubt that something might in this way be produced. It would be a great gain to get the yellow hue of this plant associated with the rich markings of our numerous high-coloured *Cattleyas*, so many of which bloom about the same time."

Ever since this was written how much has been attempted and how little done. Although more than thirty years have elapsed, there is still the same desire in the minds of hybridists, and, so far as it is possible to prophesy, this will continue for at least a similar period.

Two prominent difficulties with regard to hybridisation are the delicate constitution of the plant, and the pendulous nature of the flower spikes. In the first case we find that even when seedlings have passed the initial stage they are so weak that further progress is rendered impossible. On the other hand, almost all the allied plants with which it will hybridise produce their flowers in an erect

state, and on that account there will always remain a very undecided point as to whether the growth and flowers of the seedlings will be produced in a horizontal and intermediate position, or whether they will acquire the pendulous habit of *citrina*, or the erect nature of other species.

The following is a complete list of the recorded hybrids:—

Cattleya citrino-intermedia was raised in the collection of Dr. Harris, of Lamberhurst, and first flowered in November, 1887, when 6½ years old. On October 23rd, 1888, it was shown at the Royal Horticultural Society by Baron Schröder, and received a First-class Certificate under the name Lamberhurst hybrid.

Lælio-Cattleya Seraph is the result of crossing *L.-C. elegans* with *C. citrina*. It was shown by Mr. Ingram, of Godalming, at the Royal Horticultural Society, August, 1896, and received an Award of Merit.

Cattleya Shakersii is a hybrid between *C. citrina* and *C. Aclandiae*, and was raised by Mons. Fanyau in 1904.

Brasso-Cattleya H. G. Alexander is the result of crossing *C. citrina* with *B. Digbyana*. It bears the name of its raiser, and first flowered at Westonbirt, March, 1907. During the same month it received an Award of Merit, Royal Horticultural Society.

Cattleya Butleri was produced by crossing *C. citrina* with *C. Schilleriana*. It flowered in Mr. W. Waters Butler's collection, November, 1911.

Lælio-Cattleya Freak is the latest addition to the list, and was raised in the Warnham Court collection by crossing *C. citrina* with *L. purpurata*. When exhibited by Mr. C. J. Lucas at the Royal Horticultural Society, June 3rd, 1913, a Certificate of Appreciation was granted.

Although the above are interesting in more ways than one, there is not much to say regarding their good qualities for future hybridisation, for, with the exception of *B.-C. H. G. Alexander*, all these hybrids have been produced with the use of purple coloured

species, and, as is almost always the case, the purple pigment entirely spoils the yellow.

Cattleya aurea at once suggests itself as a suitable plant with which to work, but there will always remain the difficulty of obtaining both plants in flower at the same time, one usually blooming in the spring and the other in the autumn. B.-C. Mrs. J. Leemann may also be recommended, and so may most of the hybrids containing *C. aurea*, *L. xanthina*, and others of the yellow section.

However successful the seed-raiser may be, it is very questionable whether the final flowering results will equal our expectations. To overcome the strong pendulous nature of the flower spike, and also the way in which the petals are closed in, instead of opening out flat, will require no small amount of patience and hard work.

SOBRALIA MACRANTHA.

THE genus *Sobralia* was created in 1793 by the Spanish botanists Ruiz and Pavon, who dedicated it to their friend Don François-Martin Sobral. It consists of about thirty species, and has for its native habitat tropical America, although at the high altitude at which the plants are found the atmosphere is comparatively cool. Somewhat terrestrial in habit, the plants are usually found on mossy rocks well exposed to the sun. One traveller has seen a large part of a mountain side thickly covered with these plants, their reed-like stems waving to and fro with the breeze.

The original description of *S. macrantha* appeared in Lindley's *Sertum Orchidaceum*, 1839, while the same author, in the *Botanical Register*, August, 1842, writes of the species as follows:—"A flower of the most delicate texture, of the richest crimson, and between seven and eight inches in diameter, growing on the summit of a reedy stem, will give the reader some notion of the magnificence of

this rare plant, as it is now flowering in the garden of the Horticultural Society, from specimens sent from Guatemala by Mr. Hartweg. Or it may be compared, for the flowers, to a huge *Cattleya*. It is one of the terrestrial species, and apparently easy enough to cultivate in a cool stove; but it is at present in few collections, no one liking to divide the roots until something more shall have been heard of its habits. It is stated by Mr. Skinner that each flower-head will go on blossoming for many weeks successively, provided the faded blooms are pulled off before they decay. We have nothing like *this* in our garden, yet; nor is there anything finer of the race to be introduced. It is the leader of the *crème* of its order."

This species is also the subject of an interesting note by Darwin in his *Fertilisation of Orchids*. He wrote:—"Mr. Cavendish Browne informs me that he saw a large humble-bee enter a flower of *Sobralia macrantha* in his hot house, and when it crawled out it had the two large pollen-masses firmly fixed to its back, nearer to the tail than to the head. The bee then looked about, and, seeing no other flower, re-entered the same one of the *Sobralia*, but quickly retreated, leaving the pollen-masses on the stigma, with the viscid discs alone adhering to its back. The nectar of this Guatemala Orchid seemed too powerful for our British bee, for it stretched out its legs and lay for a time as if dead on the labellum, but afterwards recovered."

The subject of our illustration is a noble specimen of *S. macrantha alba* in the collection of Mr. J. Gurney Fowler, Glebelands, South Woodford. When the plant was exhibited at the recent Chelsea Show, and received a Cultural Commendation, it carried no less than 75 flowers and buds, although many others had previously been produced. The albino varieties of this species differ slightly in the size of the yellow area in the throat, so it appears evident that they have not all originated from the same stock. The earliest albino to be recorded received the name of *S. macrantha Kienastiana*, in honour of Herr Kienast Zolly, of Zurich.



Sobralia macrantha alba, flowering in the collection of J. Gurney Fowler, Esq., Glebelands, South Woodford.
Awarded Cultural Commendation, Chelsea Show, 1913.



*A portion of the Gold Medal group exhibited by Messrs. Charlesworth & Co. at the Chelsea Show, May, 1913.
The new Cymbidium Humboldtii is in the centre.*



Two pretty views in the Establishment of Messrs. Stuart Low & Co., Bush Hill Park, Enfield. The top one shows the entrance to the warm houses, the lower one the entrance to the cool houses.

The Broadlands Collection.

TUNBRIDGE
WELLS.

TUNBRIDGE WELLS, so historic with its Pantiles and Royal connections of the past, has an attractive spot at Broadlands, Camden Park, the residence of Ernest R. Ashton, Esq., who for more than fifteen years has been interested in Orchid culture.

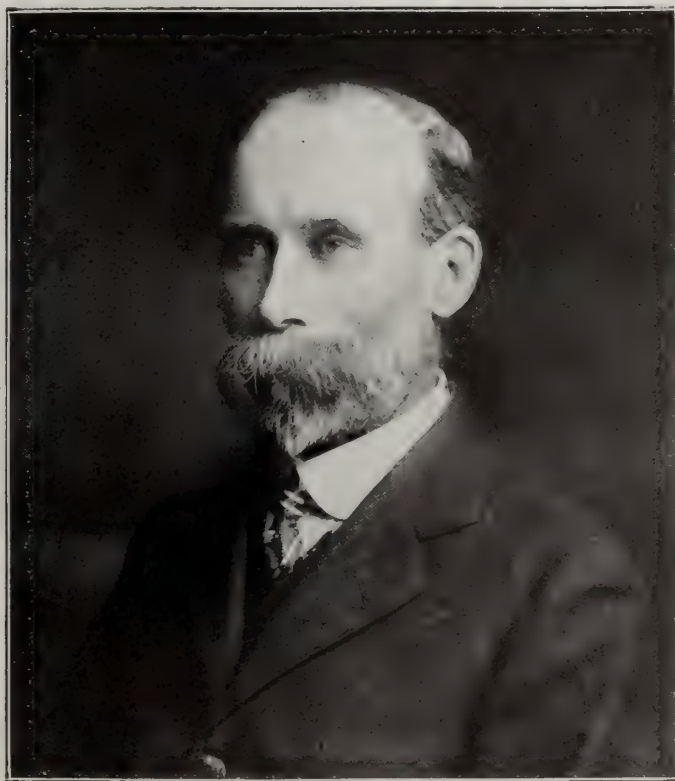
In his journeys to far distant countries Mr. Ashton has seen many of the native homes of Orchids, and has not failed to note the conditions under which they thrive, as well as securing specimens for his present collection. When visiting Jamaica he secured the curious *Brassia maculata* and the crimson flowering *Broughtonia sanguinea*, while at Grenada the pretty *Diacrium bicornutum* was collected. Port of Spain, Trinidad, was also visited, and here Mr. Ashton found a superior type of *Oncidium Papilio*, a very fine specimen of which was being cultivated by one of the natives in his own garden. No amount of

money would induce the owner to part with his dearly loved treasure, although for a small sum, equal to twopence in English money, one of the natives would climb up a tall tree

and obtain some plants. A few of these were purchased and are now growing freely in the Broadlands collection. Mr. Ashton has also journeyed to Australia, but the somewhat uninteresting nature of the Orchids there and the long homeward voyage did not encourage him to secure any plants.

The up-to-date construction of the houses is of much interest

to Orchid growers. In order to obtain as much internal air space as possible the ground is excavated to the depth of from 12 to 18 inches below the lattice path and side staging. Along each side of the central path a wall of porous bricks is constructed to support the staging and with the chief object of maintaining a regular temperature and



Ernest R. Ashton, Esq.



Cattleya Oberon (Fabia × Hardyana).
A beautiful hybrid in the Broadlands Collection.

moist condition of the atmosphere. These bricks absorb considerable heat and moisture, which is given off directly any change in the atmosphere takes place. Should by any chance the fire go out on a cold night, it is found that the large amount of heat-holding material inside the house greatly assists in preventing a rapid fall in the temperature.

The side staging is made of narrow strips of wood preserved by red oxide paint. About two feet below this construction galvanised T-irons are placed in such manner that porous tiles can be arranged either as a solid under-stage or else widely separated to allow of free air circulation. During winter time the former method is used in order to prevent the dry heat from the hot-water pipes affecting the plants, while in summer time the latter style allows plenty of cool, moist air to reach the plants.

Although the sides of these houses are constructed with panes of glass, there is a second inner pane of ground glass, which not only affords shade to the plants but acts as an effectual means of keeping out the cold. The sash bars are arranged in such way that the lower or drip preventing portion is slightly shorter at its lower end in order to allow the condensed moisture to fall on to the brick wall beneath instead of trickling down the glass sides as is usually the case. Lath roller blinds are used for shading, and the corridor connecting the houses is utilised for potting and cleaning the plants.

The *Odontoglossum* house has been quite an attraction during the last few months, many of the plants having carried strong flower spikes. Of these, one may mention Jasper, with 33 flowers, *crispum* Mrs. Peeters, a very pretty variety of *Doris*, and a handsome form of *eximium*. A new and promising hybrid is *Phocis*, the result of crossing *Phœbe* with *Solon*. There is also a good variety of *illustrissimum*.

Odontoglossum Williamsianum grows here with much vigour, and considering the long flower stalk and the great number of blooms it is strange that it does not more often take the place of *grande*. Species which are represented by specimens include

crispum Rossendale, easily distinguished from other varieties by its dark bronze foliage, *crispum* Oakdene Surprise, and *nævium* with its fairy-like flowers.

Lycaste Skinneri is represented by several specimens, *Cymbidium Wiganianum* by a distinct yellow form, and *Masdevallia Harryana* by the elegant Leyswood variety, now carrying 13 flowers, and one of the finest forms of the species. In this cool house are also grown several strong plants of *Epidendrum vitellinum* and many specimens of *Dendrobium infundibulum*, for under cool treatment this latter species succeeds far better than when its cultivation is attempted along with the heat-loving kinds.

No collection is now considered complete without a varied selection of *Odontiodas*. At Broadlands the pretty *Adrastia* (*Bonhofiæ* × *crispum*), *wickhamensis* with rose-violet flowers, and *Vuylstekeæ* may be noticed. A good plant of *Odontioda rosefieldiensis* (*triumphans* × *Nœzliana*) has very bright orange-scarlet flowers.

Cattleyas are an equal favourite with Mr. Ashton, and, judging by the rapid headway which they have recently made, some very fine specimens will soon be produced. Almost all the species are represented, many fine varieties having lately been acquired. *C. Mossiæ Wagneri* and *C. Mossiæ Reineckiana* are two well-known albinos. *C. labiata* Hon. James Lowther, and *C. labiata alba* from Mr. J. J. Holden's collection are choice varieties. *C. Skinneri* is represented by a pure white form and by the very dark one known as Temple's variety.

Hybrids are well represented. The beautiful *Cattleya Oberon* (*Fabia* × *Hardyana*), of which we give an illustration, and *Brasso-Cattleya Madame Jules Hye* (*Digbyana* × *Harrisoniana*), both received Awards of Merit at the Orchid Conference held by the Royal Horticultural Society, November 5th, 1913, while many medals for groups have also been secured. *C. Lord Rothschild delicata* and *C. Fabia Vigeriana* have recently been purchased from the Muller-Abeken sale. A very pretty hybrid is to be seen in *C. Alcimeda*, produced by crossing *Gaskelliana alba* with

labiata Gilmouræ, and also in *C. Fabia alba*. *C. Suzanne Hye de Crom* is another elegant flower.

Lælio-Cattleyas include *Marion*, described in the ORCHID WORLD, Vol. II., page 218; *Lady Miller*, a fine specimen with 20 flowers of cinnabar-red colour; *Smilax*, a charming hybrid derived from *C. Enid* × *L.-C. Charlesworthii*; and *Aureole*, obtained by crossing *luminosa* with *Iris*. There are also many good plants of *Canhamiana alba*, *Hippolyta*, and *Wellsiana*. Other hybrids include *Sophrocattlælia Marathon* and *C. Mendelii* × *S.-C. Psyche*.

In another house are strong plants of the *Swan Orchid*, *Cynoches chlorochilon*, *Chysis aurea*, and *Mormodes pardinum*, with light yellow flowers spotted with brownish red. *Thunia Veitchiana* (*Bensoniæ* × *Marshalliana*), various *Oncidiums*, and the scarce *Lælia harpophylla* are also cultivated.

Mr. Ashton obtains considerable pleasure from his collection, which promises to grow into one of no small importance. In the practical part he has an able worker in Mr. A. Young, whose method of culture appears eminently satisfactory.

ORCHIDS FOR AMATEURS.

THE warm and sunny days of summer are ideal for the cultivation of *Cattleyas*, *Lælias*, and the various hybrids which have been produced by crossing the many species of these two genera. *Cattleya* hybrids have been brought to a state of perfection hitherto thought impossible, and *Lælio-Cattleyas* contain varieties having shades of colour which were never dreamed of in the early days of hybridisation. Years ago the amateur often gave up the culture of certain classes of Orchids because he was unable to find plants suitable to the atmosphere of his greenhouse; but in these days there is such a vast number to select from that no difficulty will be experienced in purchasing those both pleasing to himself and agreeable with the climatic conditions under which their cultivation is attempted.

The youngest amateur is familiar with the prominent species, and before he has had many seasons of experience he can easily discriminate between the good and the bad varieties. Everyone has his own particular fancy, and while one amateur will enjoy the sight of a certain variety, another grower may criticise its weak points and refuse it a place in his collection. There are, however, many varieties of the various species which are acknowledged by one and all to be far ahead, in the way of distinctness and beauty, from others of their kind. Now if the amateur acquires a few of these notabilities, he not only has something which will interest his friends, but something that careful cultivation will well reward him for his trouble and expenditure. There is always a good market for propagated plants of unquestionable merit.

When purchasing plants of species the amateur would do well to obtain only those that are quite healthy and vigorous. Back bulbs and starved plants can only successfully be grown by experienced cultivators, and even then considerable skill and patience are required before the flowers are produced in their finest form. Large, strong plants cost more to acquire, but they are the most satisfactory, and by far the cheapest in the end.

With seedling and hybrid Orchids there is less to fear, for, taken on the whole, these are of a healthier nature and of stronger constitution. The amateur will experience no difficulty in cultivating small seedling and propagated plants so long as he gives them the requisite attention. All small plants of the *Cattleya* and *Lælia* section, whether seedlings or young plants produced from the back bulbs, require a moist and warm atmosphere. To attempt to grow them in a dry and airy house, which may be suitable for large plants, is almost sure to bring about poor results. The growth made under these conditions is hard and of a dwarf nature, and the plants take an unreasonable length of time in reaching the flowering stage. Moreover, the owner soon tires of the trouble in attending to their wants, with the result that

the plants are put in an out of the way place where they soon perish entirely. Very much of the young amateur's early disappointment is caused by his attempt to cultivate plants only suitable for the man of long practical experience.

The long bulbed section of *Lælias* prove of considerable use for hybridisation purposes, both for colour and quantity of flower, although it must be admitted that they are sometimes of rather a starry nature. Still, there is one great advantage which they possess—the comparative ease with which they can be raised from seed. Almost everyone is familiar with *Lælia cinnabarina*, a species which has been much used on account of its brilliantly coloured flowers. Seed produced by this species, either as a mother or pollen parent, is the easiest of any to germinate, and it is very suitable material for the amateur when commencing his work of seed-raising. By carefully noting upon which compost and under what atmospheric conditions the best germinative results are procured, so will experience and future success be obtained. It is no use stating certain temperatures and times of watering as being absolutely necessary, for in every house where Orchids are grown the structure and position are so varied that such details may often lead to further difficulties. Every cultivator must carefully discern for himself the daily, or even hourly, condition of the compost and atmosphere. A few hours' neglect, such as may happen with a sudden outburst of sunshine, is quite sufficient to severely damage a tender seedling, and the smaller this seedling is, so much more risk is there attached to its cultivation.

Those amateurs who cannot afford sufficient time for the proper care of young seedlings will obtain far more satisfactory results by purchasing comparatively large plants from one of the many firms now engaged in the seed-raising industry. Plants with about five good bulbs may reasonably be expected to flower on the completion of the next new growth, and quick results are easily obtained. A strongly established plant will withstand a large amount of ill-treatment before it reaches

such a low state of vitality as to cease flowering. So that even if the amateur is unable to give his plants the treatment essential for their increase of size, he, at least, has something that will give him pleasure by producing elegant flowers for several successive seasons.

Now while some amateurs prefer to purchase their plants when in flower, and thus select only the finest forms, or those suitable to their taste, there are others who always acquire large quantities of unflowered seedlings, and obtain pleasure by watching the growing flower buds and wondering what their special charms will be. Many plants will be worthless from a commercial aspect, as those who have raised and flowered large quantities know only too well. The difficulties experienced in obtaining a really first-rate hybrid fully justify the high price asked by those who raise seedlings on a commercial basis.

Those amateurs who have visited some of the large establishments in which seedlings occupy much attention remember full well how astonished they were when they saw for the first time a whole house devoted to thousands of tiny seedlings, each in a little pot to itself. What will become of such an immense number of plants and how much room will they occupy before attaining flowering size are thoughts that immediately come to one's mind. Yet this cultivation has been going on for many years and shows every likelihood of being increased in the near future, for as the high standard of an exhibition flower increases, so must the number of seedlings be increased in order to secure the good varieties.

One may safely say that no amateur has attempted to count the seeds in an Orchid seed-pod; they are, in fact, countless and defy even our imaginative skill to form anything like a correct opinion. But, in all this vast number there may be ten or twenty which will ultimately produce very superior flowers, although there are no means whatever by which these special seeds can be detected. Every seed in the pod requires careful attention to bring it safely through the

germinative condition, and a further period of several years of necessary cultivation. It is only when the plants flower, after an average of some four or five years, that the owner can distinguish the good varieties

from the bad. Here, then, is one of the principal factors that will always impart to Orchids that rarity and value which allows them to stand out so prominently from all other forms of vegetable life.



Odontoglossum Empress of India, a handsome hybrid, exhibited by Messrs. Charlesworth & Co.,
at the Chelsea Show, May, 1913.

ORCHID SALE.

THE collection of Orchids formed by the late Herr Gust. H. Muller-Abeken was sold by Messrs. Protheroe and Morris, at their auction rooms, Cheapside, London. The total sum realised was considerably over £3,000, the following being some of the highest figures:—

Cattleya Luegæ, 8 gns.; *C. gigas*, 18 gns.; *C. Hardyana alba*, 11 gns.; *C. vivicans*, 4½ gns.; *C. Lord Rothschild*, 8 gns.; *C. Empress Frederick alba*, 15 gns.; *C. Hardyana*, 6 gns.; *C. Luegæ var. Adelina*, 22 gns.; *C. gigas var. J. Charlesworth*, 40 gns.; *C. Peetersi alba*, 10 gns.; *C. Trianæ cœrulea*, 45 gns.; *C. Mossiæ Tracy's var.*, 8 gns.; *C. Trianæ The Premier*, 24 gns.; *C. Mendeli Prince Fushima*, 7½ gns.; *C. labiata var. Mrs. G. H. Muller*, 8 gns.; *C. Mossiæ vestalis*, 6 gns.; *C. Trianæ var. Frau von Bethman Holleveg*, 13 gns.; *C. Hildegard*, 13 gns.; *C. Maggie Raphael alba*, 11 gns.; *C. Dowiana Rosita*, 34 gns.; *C. Lueddemanniana Empress*, 34 gns.; *C. Fabia*, 7 gns.; *C. Trianæ cœrulea var. Frau G. H. Muller-Abeken*, 28 gns.; *C. aurea Nankin*, 10 gns.; *C. Mossiæ Wagneri var. Comte de Chavagnas*, 24 gns.; *C. Mossiæ var. President Steyn*, 18 gns.; *C. Mendeli His Majesty the King*, 18 gns.; *C. Mendeli var. Frau Lina Abeken*, 14 gns.; *C. Hardyana*, 14 gns.; and *C. labiata Gilmouræ*, 38 gns.

Sophro-Cattleya Olive, 7½ gns.; *S.-C. Lottie Muller*, 56 gns.; *S.-C. Blackii*, 4½ gns.; *S.-C. Saxa*, 5 gns.; *S.-C. Thwaitesii*, 7½ gns.; *Sophrocattlælia Sandhaghiensis*, 7½ gns.; *S.-C.-L. Barbara Wilson*, 17 gns.; *S.-C.-L. Marathon*, 11 gns.; *Brasso-Cattleya Abekenii*, 13 gns.; *B.-C. The Baron*, 7½ gns.; *Lycaste Skinneri alba*, 11 gns.; *L. Skinneri Armeniaca*, 14 gns.; *L. Skinneri hellemensis*, 7½ gns.; *L. Hagha* (natural hybrid), 10 gns.; and *Anguloa Cliftonii*, 6 gns.

Odontoglossum amabile, 8 gns.; *O. ardentissimum var. Princess Juliana*, 6 gns.; *O. amabile var. Sandhaghe*, 14 gns.; *O. Fascinator var. Kaiser Wilhelm*, 14 gns.; *O. eximium Charlesworthii*, 20 gns.; *O. Pescatorei Charlesworthii*, 30 gns.; and *Odontonia*

Lairessæ, 7 gns. *Rhynchostylis retusa alba*, 32 gns., figured in the ORCHID WORLD, Vol. II., p. 74, and Vol. III., p. 74.

ROYAL HORTICULTURAL SOCIETY.

June 3rd, 1913.

MEMBERS of the Orchid Committee present: J. Gurney Fowler, Esq. (in the chair), Messrs. Jas. O'Brien (hon. sec.), J. S. Moss, J. Wilson Potter, Gurney Wilson, R. A. Rolfe, F. Sander, S. Low, F. M. Ogilvie, J. Charlesworth, J. Cypher, W. H. Hatcher, G. Hunter, W. H. White, S. Flory, W. Bolton, R. Brooman-White, de B. Crawshay, T. Armstrong, A. Dye, C. H. Curtis, J. E. Shill, Sir Harry J. Veitch and Baron Sturten.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Geo. Day), was awarded a Gold Medal for a very extensive group of Orchids, all of which were well-flowered and staged in good style. The varieties of *Odontoglossum crispum* included *Waterloo*, *The Mikado*, *Frederickii*, *Mrs. Humphrey* and *H. S. Goodson*. Others were *Lord Carnarvon* and *Snowflake*, of unrecorded parentage; the new *Odontoglossum Dema* (*Thompsonii* × *cirrhum*), *eximium* *Harry Goodson*, and *ardentissimum* *Herbert Goodson*. *Cattleyas* were equally well shown, and included *Mossiæ Wageri*, *Lawrenceana*, *Mendeli*, and various hybrids. One of the best groups staged by this well-known amateur.

Messrs. Sander and Sons, St. Albans, secured a Silver Flora Medal for an interesting exhibit of *Lælio-Cattleya Fascinator* and *Canhamiana*, the new *L.-C. Hibernia* and *Caledonia*, a large plant of *Maxillaria fragrans* with numerous white flowers, *Miltonias*, including *Bleuana*, *St. André* and *vexillaria*, and a pleasing variety of *L.-C. Kathleen*.

Messrs. Armstrong and Brown, Tunbridge Wells, were awarded a Silver Flora Medal for a well-staged group of choice Orchids. At each end were superb plants of *Cœlogyne*

pandurata, which had been cultivated from single bulbs, and now carried 12 and 13 flowers on a spike. *Cypripediums* included *Boltonii* and *callosum* Sanderæ. The centre was filled with many fine *Odontiodas*, and several species of botanical interest.

Messrs. J. Cypher and Sons, Cheltenham, received a Silver Banksian Medal for a good exhibit of *Miltonias*, the yellow flowering *Dendrobium Thwaitesæ* Veitch's variety, *Thunia Veitchii*, *Lælio-Cattleyas*, of which *Aphrodite* was the best, and *Masdevallias*.

E. H. Davidson, Esq., Twyford, Berks, secured a Silver Banksian Medal for a neat group containing the handsome *Odontoglossum Aireworth*; *Cattleya Mossiæ* Golden Ray, with yellow markings on the petals; *Odontoglossum crispum xanthotes*; and *Lælio-Cattleyas*.

Messrs. Charlesworth and Co., Haywards Heath, obtained a Silver Banksian Medal for some choice specimens, the best being *Miltonia vexillaria* Empress Augusta Victoria, with 13 spikes; *Zygopetalum Brewii*; *Lælio-Cattleya Canhamiana alba*; and *Vanda teres*.

Messrs. Stuart Low and Co., Bush Hill Park, were awarded a Silver Banksian Medal for an attractive group, in which were several good *Cattleya Mendelii*, *C. Mossiæ*, one of which named *Fairy Queen* had white sepals and petals; the golden *Dendrobium Dixanthum*; *Lælio-Cattleya Canhamiana* Duchess, with white sepals and petals; and many well-flowered plants of their summer blooming type of *Dendrobium formosum giganteum*.

Messrs. Hassall and Co., Southgate, received a Silver Banksian Medal for a pretty group of *Odontoglossum* hybrids, the white *Cattleya Dusseldorfei*, a very fine variety of *Odontoglossum Uro-Skinneri*, and *Miltonia vexillarias*.

Messrs. W. B. Hartland, Cork, were awarded a Bronze Banksian Medal for a small group of various Orchids.

Sir Trevor Lawrence, Bart., Burford, showed several plants of *Lælio-Cattleya Canhamiana*, *L.-C. Fascinator-Mossiæ*, the rare *Oncidium Clæsii*, and *Epidendrum organense*.

Pantia Ralli, Esq., Ashted Park, exhibited a very fine variety of *Odontoglossum Aireworth*.

C. J. Lucas, Esq., Warnham Court, showed *Odontoglossum triumphans* Ladybird, and *O. Eva* (*cirrhosum* × *Kegeljani*), a bright yellow hybrid.

Ernest Mocatta, Esq., Woburn Place, Addlestone, sent *Odontoglossum Jasper*, of rich colour and carrying two good spikes.

J. Gurney Fowler, Esq., Glebelands, South Woodford, showed *Odontoglossum crispum* Ruth, a grand variety.

E. R. Ashton, Esq., Tunbridge Wells, staged *Odontioda Adrastia* (*Bohnhofiæ* × *crispum*), of rose-pink colour.

Mons. H. Graire, St. Amiens, France, showed *Odontoglossum Saturne* (*nebulosum* × *crispo-Harryanum*), dull yellow with brown spots.

Francis Wellesley, Esq., Woking, exhibited *Lælio-Cattleya* Lady Roberts (*L.-C. Euphrosyne* × *C. aurea*), a richly coloured hybrid.

R. Brooman-White, Esq., showed *Odontoglossum Wilckeanum* The Kaiser, with a many flowered spike.

Sir Jeremiah Colman, Bart., Gatton Park, showed the interesting *Catasetum Colmaniae*; two plants of *C. Cliftonii*, one with a male and the other with a female inflorescence; and *Epicasta* Gatton Park variety, a particularly good form.

Mr. H. Dixon, Spencer Park Nursery, Wandsworth Common, staged *Cattleya Mossiæ Imperiale*, a large and richly coloured variety.

Mr. C. F. Waters, Balcombe, staged several good forms of *Cattleya Mossiæ* and *Mendelii*.

AWARDS OF MERIT.

Odontoglossum Aireworth "Orchid Dene variety," from E. H. Davidson, Esq., Twyford, Berks.—A very broad petalled form, with all the segments nearly covered with reddish-purple blotches.

Odontoglossum Lairessei (*Edwardii* × *Cervantesii*), from Sir Trevor Lawrence, Bart.—An effective flower with the inner halves of the segments purple-red.

Odontoglossum Neptune (*crispum* × *nebulosum*), from Mons. H. Graire, Amiens.—A much finer form than those previously seen. The flower blotched with bright purple-red, the lip having small spots in addition to the large blotch beneath the crest.

CULTURAL COMMENDATION

To Mr. W. Smith, gr. to Albert Pam, Esq., Malting Farm, Little Hallingbury, Bishop's Stortford, for an extremely fine specimen of *Cattleya Mossiæ* growing on a block of native wood collected four years ago. The plant carried over 100 flowers.

To Mr. W. H. White, orchid grower to Sir Trevor Lawrence, for *Epidendrum organense* with 18 flower spikes.

CERTIFICATE OF APPRECIATION

To C. J. Lucas, Esq., for *Lælio-Cattleya Freak* (*C. citrina* × *L. purpurata*), a curious hybrid intermediate between both parents.

June 17th, 1913.

MEMBERS of the Orchid Committee present :

J. Gurney Fowler, Esq. (in the chair), Mr. James O'Brien (hon. sec.), Sir Jeremiah Colman, Bart., Sir Fred. Moore, Sir Harry J. Veitch, R. Brooman-White, Gurney Wilson, C. J. Lucas, W. Bolton, F. Sander, F. M. Ogilvie, F. J. Hanbury, T. Armstrong, A. McBean, J. E. Shill, J. Charlesworth, H. G. Alexander, A. Dye, W. H. White, C. H. Curtis, and S. W. Flory.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill), exhibited two very fine specimens of *Cattleya Warscewiczii*, each with four flowers on a spike, the variety *delicata* had blush-tinted flowers with a whitish margin, and the form *Marga* carried very dark flowers of large size. *Cattleya Gaskelliana* Fairy Queen and *Odontoglossum crispum* The Baroness obtained awards.

J. Gurney Fowler, Esq., Glebelands, South

Woodford, showed the elegant *Odontioda Cooksoniæ* Fowler's variety, which has previously been awarded a First-class Certificate in 1912. The flowers were rich red, the tips of the segments being white.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), was awarded a Silver Banksian Medal for a neat group which included *Odontoglossum eximium* Goodsonii, *O. Lambeauianum* St. David, and a very richly marked variety of *O. nebulosum*.

Messrs. Charlesworth and Co., Haywards Heath, secured a Silver Banksian Medal for an interesting exhibit containing a well-flowered plant of *Grammangis Ellisii*, the interesting *Peristeria elata*, several good *Odontoglossums*, and *Brassavola Digbyana*.

Messrs. Stuart Low and Co., Bush Hill Park, were awarded a Silver Banksian Medal for an effective group in which were many *Dendrobiums*, the red *Renanthera lmschootiana*, *Bulbophyllum siamense*, and a remarkably large form of *Oncidium crispum*.

Messrs. Hassall and Co., Southgate, secured a Silver Banksian Medal for a good group of *Cattleyas*, including many varied forms of *C. Mossiæ*, the one known as *Fletcheri* having white flowers with a faint blush tint.

Mr. S. W. Flory, Twickenham, was awarded a Silver Banksian Medal for a fine display of *Cattleya Mendelii*, *C. Mossiæ*, and *Lælio-Cattleyas*. Well-flowered plants of *Oncidium unicorn* were also shown.

Francis Wellesley, Esq., Westfield, Woking, exhibited *Cattleya Mendelii* His Majesty the King, a very broad petalled flower of great beauty. F.C.C., Temple Show, 1908.

Sir Mervyn Buller, Bart., Broomhill, Spratton, Northampton (gr. Mr. J. B. Dovey), exhibited *Lælio-Cattleya Martinetti* "Cupatria," a very beautiful form with richly coloured flowers.

Mr. E. V. Low, Haywards Heath, staged *Lælio-Cattleya Macfarlanii*, with a purple labellum margined with white, *L.-C. Aphrodite* King George, and *L.-C. Martinetti*, a distinct form.

AWARDS OF MERIT.

Odontoglossum crispum The Baroness, from Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill).—One of the largest and most beautiful varieties, although showing some suggestion that *Pescatorei* had been connected with its formation. Petals of excellent shape, and with the sepals blotched and spotted with violet-purple, the violet tint of the reverse side showing through between the blotches. Lip large, elongated, blotched with chestnut-red.

Cattleya Gaskelliana Fairy Queen, from Baron Bruno Schröder.—A very attractive flower, pure white with the exception of a slight rose tint on the labellum.

Oncidioda Bella (*Oncidium Marshallianum* × *Cochlioda Nœzliana*), from Messrs. Charlesworth and Co.—A very pretty result. See "New Hybrids."

CULTURAL COMMENDATION

To Mr. W. H. White, Orchid grower to Sir Trevor Lawrence, Bart., K.C.V.O., Burford, for a fine specimen of *Dendrobium Victoria Regina*, with numerous blue and white flowers. The specimen had been cultivated in a cool house, which appears to be the best treatment for this species.

To Mr. J. Davis, Orchid grower to J. Gurney Fowler, Esq., Glebelands, South Woodford, for a strong plant of *Odontioda Cooksoniæ*, Fowler's variety.

YORKSHIRE GALA.

THE Yorkshire Gala, held in the Bootham Park, York, June 18th to 20th, 1913, was a great success. The following awards were made for Orchids:—

Messrs. James Cypher and Sons obtained the First Prize for a table of Orchids measuring 12 feet by 5 feet, arranged for effect.

In the class for 12 Orchids in flower Messrs. Cypher and Sons were again first. The specimens included *Lælio-Cattleya Aphrodite* with 14 flowers, *L.-C. Canhamiana*

with 15 blooms, and *Epidendrum prismatocarpum* with 10 spikes. The Second Prize was awarded to W. P. Burkinshaw, Esq., Hessle, whose specimens included *Lælia tenebrosa* "Walton Grange variety" and *Coelogyne pandurata*. The Third Prize was given to Mr. E. H. Davidson, Twyford, Berks.

For the best six Orchids Messrs. Cypher and Sons, Cheltenham, were first, Mr. Burkinshaw second, and Mr. E. H. Davidson third. Mr. Burkinshaw exhibited *Cattleya Mossiæ Wageri*, and obtained the prize for the best single plant, as well as First Prize in the two classes open to amateurs, for six Orchids and three Orchids respectively.

The Non-competitive Exhibits were specially attractive, the Large Gold Medal being awarded to Messrs. Mansell and Hatcher for a very fine group, in which *Lælio-Cattleya Canhamiana alba* and *Miltonia vexillaria* were prominent features.

A Gold Medal was awarded to Messrs. Charlesworth and Co. for a grand display. A Large Silver-gilt Medal to Messrs. Sander and Sons for a meritorious exhibit; and a Silver Medal to Mr. W. A. Manda, St. Albans, for specimen *Cattleyas*.

MANCHESTER ORCHID SOCIETY

May 15th, 1913.

MEMBERS of the Committee present: Rev. J. Crombleholme (in the chair), Messrs. J. Cypher, Dr. Hartley, J. Lupton, D. McLeod, C. Parker, G. Weatherby, A. Warburton and H. Arthur (Secretary).

A Silver-gilt Medal was awarded to A. Warburton, Esq., Haslingden, and a Large Silver Medal to Col. J. Rutherford, M.P., Blackburn.

The Rev. J. Crombleholme, Messrs. J. Stott, J. Birchenall and W. Shackleton also exhibited.

AWARDS OF MERIT.

Cymbidium Gottianum and *Lælio-Cattleya Clarice gloriosa*, from Col. J. Rutherford.

Odontioda Schröderi "Highfield var.," from Mr. W. Shackleton.

Vol. 3.

No. 11.

THE
ORCHID WORLD.

AUGUST, 1913.



NOTES.

BENGAL BOTANIC GARDENS.—The Annual Report mentions a gift of a collection of Orchids from Messrs. Sander, which is a valuable acquisition to the collection in the Garden.



CATTLEYA AUREA.—This species has always been the great favourite for hybridisation purposes, and, judging from the favourable results, it will continue to be so. At this time of the year strong flowering plants are in much demand, and a special offer of the same will be found in our advertisement pages.



THE CORONATION CHALLENGE CUP.—The Fifty Guinea Silver-gilt Coronation Challenge Cup to be competed for annually at the Royal Horticultural Society's Summer Show has this year been won by Messrs. Sander and Sons for their splendid group of Orchids. The Cup was established in commemoration of the Coronation of their Majesties King George V. and Queen Mary, and is awarded by the Council for the most meritorious exhibit in the show. An illustration of the Cup appeared in the ORCHID WORLD, April, 1911.



GOLD MEDAL GROUP.—At the recent Birmingham Botanical and Horticultural Exhibition, Mr. W. Waters Butler, of Southfield, Edgbaston, staged one of the largest

and finest groups of Orchids ever seen in the district. No less than 250 square feet were occupied with choice and remarkable specimens from his collection. A Gold Medal and Cultural Commendation were unanimously awarded. At the same Exhibition, Messrs. Sander and Sons and Messrs. Cypher and Sons received Silver-gilt Medals, and Mr. E. V. Low was awarded a Silver Medal.



BRISTOL SHOW.—At this important event, a Gold Medal was granted to Lieut.-Col. Sir George Holford for a superb group of Orchids. Messrs. Armstrong and Brown were placed first for a group of Orchids arranged for effect in a space of 100 square feet, the second prize going to Messrs. Cypher and Sons. A Gold Medal was granted to Messrs. Stuart Low and Co., a Silver-gilt Medal to Messrs. A. J. Keeling and Sons, and a Silver Medal to Col. Cary Batten, of Abbots Leigh, Bristol.



THE KING AND QUEEN'S VISIT TO WARRINGTON.—Among the guests invited by Lord and Lady Derby to the entertainments at Knowsley, given in honour of the Royal visit, were Alderman and Mrs. Bolton, of Warrington. Mr. Bolton had previously sent a large number of choice Orchid flowers for the acceptance of the Queen, and a few days afterwards he received an intimation

from Lord Derby that Her Majesty was anxious to thank him personally for the flowers. Mr. and Mrs. Bolton were asked to go to Knowsley Hall, where they were most graciously received by the Queen, who thanked him in cordial terms for the Orchids, which she had greatly admired.

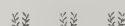


MORE LOST POLLEN.—At the Holland House Show Mr. J. Gurney Fowler exhibited *Miltonioda Harwoodii*, with a spike of several flowers. Soon after the public were admitted, it was discovered that all the pollen had been removed from the flowers, the thief escaping unnoticed. This plant, along with others intended for the Committee to adjudicate upon, was placed in a small tent, totally unguarded even by an attendant or by the usual rope round the exhibits, so little wonder that even the plant itself remained at the close of the day. These exhibits should have been placed in the large tent along with the principal groups, but, as it was, the majority of Orchid amateurs visiting the Show entirely failed to discover the small tent in which the certificated plants were placed, and they were considerably annoyed when they heard subsequently that although they saw the large groups, they entirely missed the chief attractions.



LIPARIS LACERATA.—At the Scientific Committee of the Royal Horticultural Society, July 15th, 1913, Mr. James O'Brien showed *Liparis lacerata*, which had flowered in the collection of Sir Marcus Samuel, Bart. The species is a native of Borneo, and produces a spike of about 100 small flowers, the lips of which are much lacerated. The column is at first straight, but becomes afterwards much bent in order to bring the pollinia near to the surface of the lip, in order that it may be removed by the insect visiting the flower. The plant is very rare in cultivation, but is known from a drawing, done by the late Mr. Burbidge, of a small plant in the collection of the Natural History Museum, South Kensington.

DISA GRANDIFLORA.—This very beautiful South African Orchid has been the subject of an experiment which Messrs. Veitch and Sons carried out in order to ascertain whether home raised plants possessed a stronger constitution than those imported from their native country. A strong flowering plant was selected and duly fertilised, with the result that good seed was obtained from which a healthy batch of about fifty seedlings was raised. A number of these have recently flowered for the first time, but although growing with much freedom they do not appear to possess any extra vigour.



OPHRYS ARACHNITES.—A very fine form of this interesting species comes from the collection of Mr. W. H. St. Quintin, Scampston Hall, Rillington, York. The specimen was collected by him in the south of France, and although very similar to *O. apifera* it differs principally in the sub-deltoid petals and in the lip, with its straight or incurved appendage, being longer than the sepals. In the majority of Orchids the flowers assume a position on the spike which enables the labellum to be on the lower portion of the flower. In most instances this is accomplished by a twist of the ovary or pedicel, the flower then turning through the space of half a circle. But in the genus *Ophrys* the ovary merely bends over to the other side of the main stalk, thus allowing the flower to have its labellum in the downward position without any twisting taking place. A well-cultivated specimen of *Orchis maculata alba* is also sent by Mr. St. Quintin, the plant having been originally collected by him in the Central Pyrenees.



CYPRIPEDIUM ACAULE.—It may interest readers of the ORCHID WORLD to know that *Cypripedium acaule* grows in the woods at Chestnut Hill, Brookline, Mass., U.S.A. It is almost invariably found under pine trees, and a very remarkable thing that I noticed was that all the plants without exception were growing on the north side of the trees, so that the shadow of the tree fell across them. They root very freely amongst the pine needles

and leaves, although just beneath are hard rocks. The ordinary variety has brownish petals, with a pink dorsal sepal veined with darker pink. The other day I discovered a white variety of the species, which had a greenish-yellow dorsal sepal, and the same colour on the petals, but the pouch was pure white and quite distinct from the ordinary variety. It is evidently very rare, as I have never seen it anywhere else. *Cypripedium acaule* is often called the Pink Moccasin Flower.—*Arthur E. Miles, Orchid grower to Mr. E. B. Dane, "Roughwood," Chestnut Hill.*



CÆLIA MACROSTACHYA.—Although this species received a Botanical Certificate when exhibited by the Hon. Walter Rothschild, Royal Horticultural Society, October 14th, 1904, it will be seen by the accompanying illustration that there is something more than a botanical interest attached to the plant. In the Society's Journal for 1849 appears a woodcut of the flower-spike, which, apart from the plant, is of interest for being one of the earliest illustrations of an Orchid included in that publication. There is also a remark that the plant was received some years since from Mr. Hartweg, who collected it in Guatemala; and also from Mr. Skinner. The Horticultural Society was not very successful with its culture, as the following statement from the page opposite the illustration will show: "The expectations respecting the ornamental appearance of this plant have not been realised. It has been found in a wild state with a close flower-spike as much as a foot long, and its blossoms are reported to be deep red; but in cultivation it has hitherto gained no such size, and the colour is only a pale rose, without any brilliancy." But, as we have often pointed out, it is an important matter that all Orchids should be grown to perfection, for it is only then that their real beauty can be fully discerned. This was exemplified with *Cœlia macrostachya*, for when Mr. Ferguson, the able curator of the Belfast Garden, sent a fine spike to Sir William Hooker it was used as the subject of an illustration in the

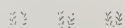
Botanical Magazine for 1853, Sir William remarking: "It is really a handsome plant, and well worthy a place in every Orchideous collection, flowering in August." The habit of the plant may be described as semi-terrestrial, a loamy compost being suitable.



Cœlia macrostachya.

CÆLOGYNE CRISTATA ALBA.—A plant with seven flower-spikes, the blooms being snow-white, was sold by Messrs. Protheroe and Morris, March, 1885, for the high sum of £131. Messrs. Wm. Bull and Sons were the purchasers.

CATTLEYA CITRINA.—With reference to the culture of this species, I know the late Sir Chas. Strickland gained considerable success by placing the plants in ordinary greenhouses until the latter part of the summer, when they were removed to a warm vinery. These plants remained vigorous for the long period of fifteen or sixteen years, and many of the last bulbs were larger than any of the former ones. Mr. Bonny, of Hackney, whose name is kept in remembrance to-day by *Odontoglossum crispum Bonnyanum*, was another successful cultivator. One of his best plants carried no fewer than fourteen flowers, all of which were open at the same time. Mr. Bonny placed some plants on the upper surface of a horizontal raft, but he soon found that every new growth and flower endeavoured to lean over the edges of the raft, so he rightly concluded that this species grows naturally in a downward direction.—*Old Amateur*.



CATTLEYA CITRINA.—The writer in last month's ORCHID WORLD mentioned that *Cattleya citrina* was difficult to grow successfully for any length of time. When in England I devoted some considerable attention to this Orchid, and for seven years had ten plants which bloomed regularly each year and never seemed to diminish either in size or vigour. They were grown in pans, on the south side of a *Cattleya* house, and when in full growth water was given in large quantities, but immediately the new bulbs were made up no more water was afforded until the flower scapes were visible. The plants were always exposed to the full sun. One point to which I attribute much success was the damping every alternate evening, from April till July, with a weak solution of soot-water. The ammonia given off seemed to encourage exceptionally vigorous rooting; so much so that when re-panning the plants, as was done every year, it was always a matter of necessity to break the pan before being able to remove the plant. Needless to say, care was always taken not to allow the plants to become wetted with the

soot-water, the staging and pans being merely damped. I have had little success in raising from this Orchid, though I once succeeded in getting a good pod when crossed with *C. aurea*, but the resulting seedlings, three in number, were very weak, and after a miserable existence of about three years, died.—*C. Alwyn Harrison, Oneglia, Italy*.



ORCHIDS AT SAN FRANCISCO, CAL., U.S.A.—It may be of interest to readers of the ORCHID WORLD to know that the people of this city are one of the most Orchid-saving communities that I have come in contact with in the United States of America. At this time of the year, when the people are away in their country homes, the supply of cut flowers is greater than the demand, and one can see the florists' shops with their windows full of fine specimen plants of *Cattleya gigas*, *C. Gaskelliana*, *C. Mossiæ* and *Lælia purpurata*; also *Phalænopsis amabilis*, the beautiful *P. Schilleriana*, *Odontoglossum citrosum roseum* and *O. crispum*. I have not seen very good success with *Odontoglossums* out here yet, although this is one of the finest temperatures, for we get the trade winds from the Pacific Ocean, and the house can be kept cool during the greater part of the year. There are a few private places where hybrid Orchids are being grown, and I have no doubt that there will be some fine collections out here in a few years' time, for when the people do anything along this line it is done well. Orchid growing has come to stay. In 1915 the World's Panama-Pacific Exposition will be held in San Francisco, and for this event six greenhouses, each 25 feet by 100 feet, have been erected for the culture of decorative plants.—*W. E. Eglington, San Francisco*.



VANDA CÆRULEA.—Since so much towards the successful cultivation of this Orchid depends upon the correct treatment afforded at the outset, a few remarks upon the method of re-establishing imported pieces may be of

use. Upon receipt of the plants, examine them carefully and cut away all dead roots and decayed leaves. Then rinse each one in a weak solution of soft soap and water, cleansing them immediately with tepid rain water. This will ensure them being free from insect pests. Lay each plant carefully on the staging in a house in which the temperature does not exceed 65 degrees Fahr., shading them from strong direct sun-light, and in a well-ventilated atmosphere. A slight sprinkling of rain water may be given every three or four days, and if this method of culture is observed, the leaves will plump up, and the stems emit new roots. When showing these signs of renewed vitality the plants may be potted, filling each pot to within a few inches of the rim with clean broken crocks, and making the plant quite firm. A layer of living green sphagnum moss should then be added. After the lapse of several months some of the top-most crocks can be removed, and osmunda fibre and sphagnum moss be added. Under care and intelligent cultivation these plants become quickly re-established and their subsequent culture presents little difficulty.—*C. Alwyn Harrison, Oneglia, Italy.*



ANÆCTOCHILUS, JEWEL ORCHIDS.—This exceptional group of Nature's most artistic work would excite the admiration of all who can appreciate beauty of form and colouring. The velvet-like appearance of the leaves, having a ground tint of light or dark green ranging to a deep bronze, upon which is traced an elegant network of silver or gold veins, contrasts finely with the rich ground colour. As several amateurs have asked me the method I adopt in cultivation, the following particulars, which to me have been satisfactory in every way, may be of interest:—The plants I have recently shown at Chelsea and Holland House were grown from very small pieces. These were placed, as an experiment, in a frame over a tank at the end of a small house in which *Phalænopsis*, etc., are growing under intermediate heat, and where a low night temperature is

maintained. The frame is fitted with a glazed light which is removed during the summer months; it is never closed up, but opened as required for ventilation during the colder part of the year. The bottom of this frame is perforated zinc, over which is a layer of small coke, then a wooden stage is placed on some inverted pots, which stand in saucers of water to prevent slugs, etc., from attacking the plants. The compost used for potting is sphagnum moss, leaves and peat, one third of each, with good drainage. This material is always kept moist, but no water is given overhead. The plants under these conditions become short and sturdy, and are then able to stand the cold, dull weather better, which seems to point out the fact that failures in many gardens have been brought about by too much heat and coddling-up under bell-glasses.—*Sidney W. Flory, Orchid Nursery, Twickenham.*

A RARE EVENT.

THE very unusual, probably unique, event of an adventitious growth appearing on the outside of a *Cypripedium* seed-pod is worthy of being recorded.

We crossed a *Cypripedium* *Elatior*, which we call No. 2, not the F.C.C. var., with the pollen of *Cyp. bingleyense*, in December, 1911. *Elatior* No. 2 is remarkable for the very long flower stem as compared with the First-class Certificate form. It has been podded again this year, and the parent flower stem is fully 12 inches, exclusive of the pod, which is another 3 inches.

The 1911 pod formed in the ordinary way, and there was nothing remarkable about it so far as we know until some four or five months had passed; but, of course, we were not watching the plant with any care. The winter-flowering *Cypripediums* were over, and our attention was directed to the spring-flowering Orchids: *Cattleyas*, *Odontoglossums*, etc., which we were preparing for the International Show. For these reasons

we missed the first stages of the adventitious growth which appeared on the pod.

At the end of perhaps four months we noticed one morning, quite by chance, a green swelling appearing about the middle of the concave side of the pod, apparently starting from one of the vertical sector lines which are characteristic of *Cypripedium* pods. The swelling was rather reminiscent of the bud which appears at the node of a *Dendrobium* bulb, whether for flower or growth. This swelling slowly developed two tiny leaves.

Time went on and the pod continued ripening in the ordinary manner, and was cut off with "the seedling" attached to it in the early days of January, 1913. About six weeks before the removal of the pod, the adventitious growth on it developed a small root at its base; and when the pod was cut off this little plant was removed from the dry seed capsule and potted up separately as a seedling.

This "seedling" is still alive; it has lost one of its original pair of leaves, and now has one old leaf and a pair of new leaves which it has made since it was potted off. But the plant is evidently in a very weakly state and probably has little or no active root. Its ultimate survival seems to me very doubtful. *F. Menteith Ogilvie, The Shrubbery, Oxford.*

LÆLIA GRANDIFLORA.

HERNANDEZ is said to have mentioned this plant in his "Natural History of New Spain," published in 1615. At a later period it was known as *Bletia grandiflora*, which Lindley included in his genus *Lælia*, and on that account the specific name *grandiflora* takes precedence over *majalis*, a name given to the plant by Lindley in 1839, who appeared to have forgotten the earlier record.

To many amateurs the name *majalis* is more familiar, and it was under such appellation that Bateman wrote of the plant in his work on the Orchids of Mexico and Guatemala, 1837. "This lovely plant," said he, "abounds in the most temperate parts of

Mexico, where its exquisite beauty has rendered it a prime favourite with the natives, from whom it has received the familiar name 'Flor de Mayo,' or 'May Flower.' A large supply of plants has been collected by Mr. Hartweg, in situations so elevated that the temperature sometimes falls below the freezing point. This habitat, so unusual for an Orchidaceous plant, will go far to explain the ill success that has hitherto attended its cultivation, for while it is easy to imitate the close and humid atmosphere in which most of the tribe are found, it is infinitely more difficult to provide a substitute for the pure air and frequent changes of temperature in which these mountain epiphytes would seem to delight. Indeed, so signal, in the case of *Lælia majalis*, has been failure of even the most experienced cultivators, that although there was scarce a collection that did not contain one or more specimens of the plant, still did it obstinately refuse to flower except in one solitary instance."

With the great advance in the method of culture which recent years has seen there has been a corresponding improvement in the flowering of *Lælia grandiflora*, although notwithstanding all our experience we do not appear to obtain anything like the amount of flower which, judging by the old flower spikes on imported plants, may be seen on the plant when in its natural home.

Now and again one hears of success, and a very recent instance is that of Mr. L. D. Hyland, who has obtained excellent results on some plants which he has carefully cultivated in his collection at Woodlands, London Road, St. Albans. From a photograph which he has had taken of the interior of his greenhouse a good idea of the many large flowers borne on stout stalks can be obtained, and the remarkable vigour of the plants is sure evidence that they have a suitable atmosphere in which to grow. The flowers were presented to a friend who had recently arrived from India, and who was greatly impressed by their beauty. No doubt, when the plants bloom again next season, Mr. Hyland will have a larger number of flowers for his generous hand to give away.



An Epiphyte laden Tree in Uganda.

EPIPHYTES IN UGANDA.

By ERNEST BROWN, F.L.S.

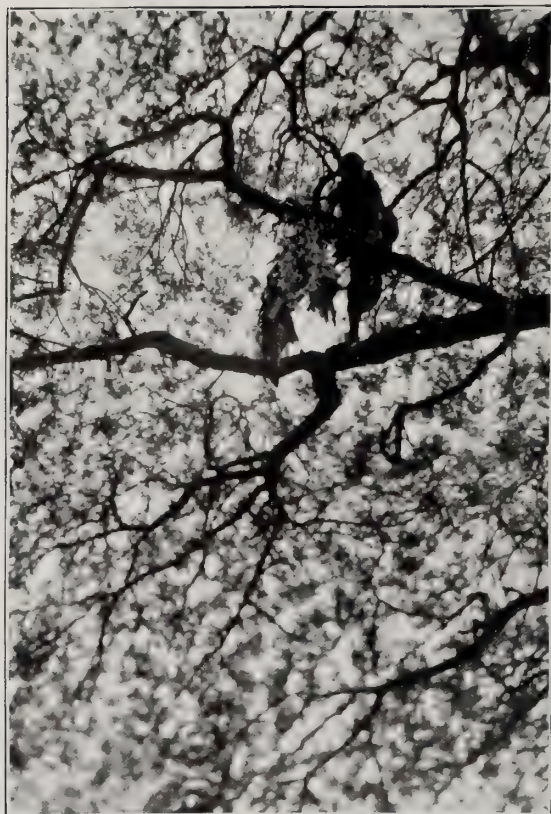
EPIPHYTES are one of the most striking features of tropical vegetation. These plants in Central Africa are, however, by no means confined to the dense humid forests, but are abundant on solitary trees, which often carry only a slight shady foliage. Orchids and Ferns are the epiphytes most commonly met with.

The photograph shows a wonderfully laden branch of a thorny flat-topped *Acacia* in Uganda. The foliage is of the typical *Mimosa* kind, scanty, and affording little

shade. The branch bears some fine *Platy-cerium* ferns, large pieces of *Rhipsalis*, and several Orchids. Among the latter *Angræcum Kotschy* may be seen in flower. To the left of the figure is a large hanging plant of *Listrostachys fimbriata*, whilst just above this is a compact clump of a bright yellow-flowered *Polystachya*.

ANGRÆCUM KOTSCHYL.

This beautiful Orchid was first found in Uganda by the writer in 1908. It had



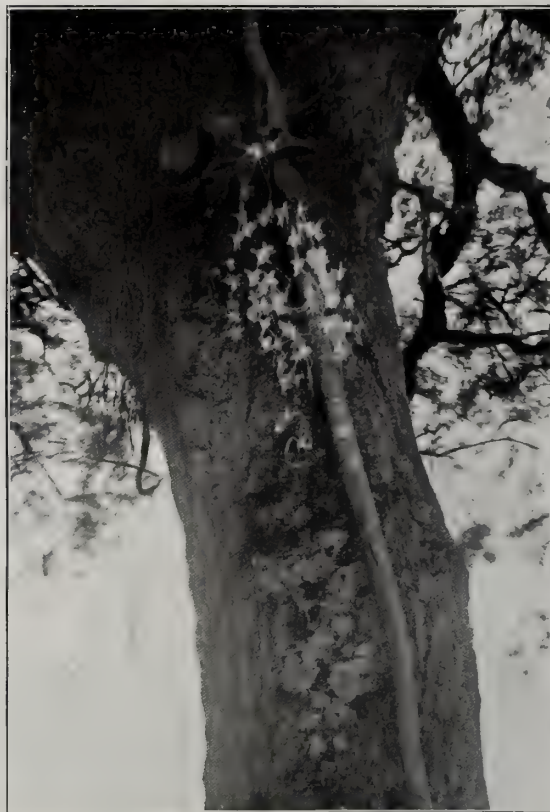
Angræcum Kotschyi, showing the very slight shade it grows in naturally.

previously been imported into England, but from an island off the East Coast of Africa, and when my plants arrived the stock in cultivation had dwindled to three or four small plants.

The consignment I sent consisted of large plants attached to the branches on which I found them. It was sent to Sir Trevor Lawrence, who grew the plants by simply hanging them up, still attached to the branch, in a hot house. So well did this treatment suit, that the fine plants shown by Sir Trevor at the Royal Horticultural Society in September, 1909, were awarded a Cultural Commendation.

The plants have no pseudo-bulbs, but thick fleshy leaves, ten inches long by four inches wide. The racemes are slender in character and of a length of two feet. The flowers are white, slightly tinted with pink, about two inches across, and have a slender spur several inches long.

The plant is not a forest Orchid, but only grows on isolated trees, generally Acacia, where it gets a large amount of sunlight. The small photograph clearly shows this, as well as the small amount of rooting material which a large plant requires.



Angræcum Kotschyi, in natural position.

ANGRÆCUM INFUNDIBULARE.

This species is the largest flowering of the Uganda Orchids. Botanically interesting on account of the peculiar shape of the flower, it is by no means merely a botanical curiosity, but a really beautiful plant when in flower. Unfortunately, it has not proved very free-flowering in cultivation. It grows wild in the dense shady forests on the shores and islands of the Victoria Nyanza.

The growths extend to great length, often five or six feet. The leaves are four inches long by one and a half inches broad. The flowers are white with the sepals and spur slightly tinted green. The funnel is four inches in length, and the lip two inches across, the spur being about five inches long.

*Angraecum Kotschy.***LISTROSTACHYS BROWNII.**

This pretty little Uganda Orchid was first discovered about six years ago in the forests on the shores of the Victoria Nyanza. It grows in dense shade. The growths are about eight inches long and bear closely packed fleshy leaves. The pure white flowers are freely produced and deliciously scented. The photograph shows the plant exactly half-size.

VOL. III.

*Listrostachys Brownii.***LISTROSTACHYS FIMBRIATA.**

This plant is really a giant epiphyte. Pieces of it are often seen in Uganda weighing over 60 lbs. Its peculiar growths often hang down a length of ten feet. The leaves are two feet long and very thick and leathery.

Flowers are freely produced in racemes two feet long. They are small and pure white in colour. A fine plant of this Orchid bearing hundreds of its feathery racemes is a very beautiful sight.

It appears to flourish in only fairly open situations, and is never seen in dense forests. I know of a leafless tree in Entebbe covered with hundreds of plants of this Orchid which flower profusely every year.



Listrostachys Montroei.

LISTROSTACHYS MONTROEI.

The photograph was taken in Uganda, and shows a fine plant growing on a branch sixty feet from the ground. The plant bore over forty spikes of flower.

NEW HYBRIDS.

CÆLOGYNE ALBANENSE.—An interesting hybrid raised by Messrs. Sander and Sons. The parents are *C. pandurata* and *C. Sanderiana*.

ODONTIODA STELLA.—A very distinct addition to the *Odontiodas* has been flowered by Mr. de Barri Crawshay, Rosefield, Sevenoaks, who produced this novelty by crossing *O. elegans* (cirrhosum $\times$ cristatum) with *C. Nœzliana*. The bulbs are somewhat similar to those of *elegans*, being long,

fusiform, and spotted, although quite distinct from those of any other *Odontioda*. The flowers are a very brilliant scarlet-red, much more so than usually seen, and almost covered with the pigment. The tips of the segments undulated and recurved, as generally seen in cirrhosum; the lip strongly recurved. A full-grown spike has a very decorative effect.

ODONTOGLOSSUM VESTA.—The parents of this new hybrid are *bellatulum* and *percultum*, giving a very neat flower, the white ground evenly spotted and blotched with brownish-red. The *bellatulum* influence is well marked, although the rounded lip resembles *Rolfeæ*. The margin of the lip is crisped, while the centre is yellow. Raised by Mr. de Barri Crawshay, Sevenoaks.

ODONTOGLOSSUM BRONZE PRINCE.—With reference to this hybrid, recorded on page 213, it now appears that the plant stated to be *Royal Sovereign* is in reality a *Vuylstekeæ*, and on that account the hybrid becomes a form of *Mansellæ* (*Vuylstekeæ* $\times$ *Harryanum*).

MILTONIODA COOPERI.—A very pretty result obtained by crossing *Miltonia Warscewiczii* with *Cochlioda Nœzliana*. The habit and individual flowers much resemble the *Miltonia* parent, the characteristic blotch on the lip being carried forward to the seedling. The colour is uncommon, being varying shades of brick-red. Raised by Messrs. Sander and Sons, St. Albans.

ODONTIODA MAGALI SANDER.—The result of crossing *Miltonia Warscewiczii* with *Odontoglossum ardentissimum*. Sepals and petals rich purple-red, labellum well developed and blotched with reddish-rose. A fine hybrid, raised by Messrs. Sander and Sons.

ODONTOGLOSSUM HYPERION.—By crossing *O. Pescatorei* with *O. Fletcherianum* (*Edwardii* $\times$ *cirrhosum*) Messrs. Sander and Sons have added one more result to the list of *Edwardii* hybrids. The flower is not unlike *O. Clytie*, although slightly broader and showing the influence of *cirrhosum*.

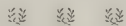
LÆLIO-CATTLEYA FAVORINUS.—In this hybrid between *Lælia xanthina* and *Cattleya Germanica* (*granulosa* $\times$ *Hardyana*) the general colour is dull yellow, the petals streaked with crimson, the lip dark crimson.

The granulosa species has imparted a fleshy nature to the flower. Raised by Messrs. Sander and Sons.

ODONTOGLOSSUM HERMIONE.—Another of the Edwardii hybrids, this being with the pollen of ardentissimum. The flower has a close resemblance to those of Thompsonianum and Clytie. Raised by Messrs. Sander and Sons.

ODONTOGLOSSUM MINERVA.—The result of crossing crispo-Harryanum with caloglossum (crispum $\times$ Vuylstekeæ) is a flower very similar to an amabile. The crispum and the Harryanum species on both sides of the parentage have united to this effect, and thus show how reversion will bring us much the same result as in our primary hybrids. Raised by Mr. de Barri Crawshay, Rosefield, Sevenoaks.

ODONTIODA HEBE.—The parents of this new primary hybrid are Odontoglossum cristatellum (Kegeljani $\times$ cristatum) and Cochlioda Noëzliana. The result is not unlike Odontioda gattonensis, but differs from the variety figured in the ORCHID WORLD, Vol. I, p. 77, by having the colour on the petals slightly more broken up. The ground colour is dull yellow, the blotching light reddish brown. Raised by Mr. de Barri Crawshay, Sevenoaks



ODONTIODA BREWII.

WHEN Odontioda Charlesworthii first made its appearance, May, 1908, considerable surprise was expressed regarding the remarkable power that Cochlioda Noëzliana had over such a distinct species as Odontoglossum Harryanum, the more so because in the majority, one might almost say in every one, of the hybrids of this latter species the Harryanum has had a powerful influence over its mate. No matter how complex the parentage of a Harryanum hybrid may be, an amateur has only to ask his friend to guess the parents and he receives the usual reply: "I can see there is Harryanum in it; there is no mistaking that."

Now hybridists certainly thought that when O. Harryanum was crossed with C. Noëzliana, the seedlings would surely show a strong likeness to this former species, more especially did they think that the prominent longitudinal striping of colour on the basal halves of the petals would in some way break up the solid red colour of the Cochlioda species. Some even suggested that we should obtain a scarlet-red Harryanum. But all these prophecies were doomed to failure. Odontioda Charlesworthii has been raised in several widely separated gardens, and in every case, without a single recorded exception, the results have been practically similar; a solid scarlet-red flower, the only perceptible difference being in regard to size or density of colour, such as is due to the variance of the parental characters.

The ambition of the hybridists was in no way discouraged by these unexpected results. There seemed to be but one way out of the difficulty, and this was to cross Odontioda Charlesworthii with O. Harryanum, and so produce a hybrid having a double influence of this latter species. In this way it was expected that the Cochlioda colour would be broken up into a pattern not unlike that of Harryanum.

Messrs. Charlesworth and Co. at once made a cross of this description, and during the last few weeks three of the seedlings have reached the flowering stage and received the name Odontioda Brewii. The results are astonishing. In one the flower has assumed an intense crimson, so much so that the flower appears almost black, while the petals are inclined forward as typical of Harryanum. In another flower the colour is somewhat lighter, with the large lip bright ruby-crimson. The third flower possesses a lip of a peculiar bronze colour never before seen in any Odontioda.

Beautiful as all these variations are, the solid coloration still remains. Even when the flowers are held up so that bright day-light shines through the segments there is no sign of blotching or breaking up of this remarkable red pigment. What are we to do next and to expect are now our foremost thoughts.

THE COMMENCEMENT OF COOL-HOUSE TREATMENT.

AUGUST 25th, 1863, just fifty years ago, marked the real commencement of the cool-house treatment in Orchid culture. It was on this day that James Bateman, of Biddulph Grange, read before the Floral Committee of the Royal Horticultural Society a Paper on the principles of cool-house treatment for Orchids, and to prove the success of his methods he exhibited a beautiful plant of *Epidendrum vitellinum*, to which a Special Certificate was awarded.

Before giving particulars of Bateman's notes, it will be well to state that for many years after Orchids were first introduced into England the only atmosphere thought suitable to their culture was a hot, steamy and unventilated stove-house. Even when the celebrated John Lindley was appointed secretary to the Royal Horticultural Society, an attempt was made by the Society to cultivate Orchids in a specially prepared house. The results were at first unsuccessful; the plants were lost as quickly as they were received. Lindley, however, continued his experiments, and eventually obtained some measure of success with those plants suitable to high temperature and excessive humidity. This treatment remained in vogue for a long period. It is only fair to Lindley to remark that when correct details of the habitats of certain Orchids came to hand he always did his utmost to advise his friends. In 1835, he wrote: "If a great majority of epiphytal Orchids swarm in damp tropical forests, there is a considerable minority which live in an entirely different climate."

Joseph Cooper, gardener to Earl Fitzwilliam at Wentworth, must have been a man of considerable intelligence, for when Sir William Hooker visited the place in 1835 he remarked: "I must confess that the sight of this collection, whether the vigorous growth and beauty of the foliage, or the number of splendid specimens blooming at the same time, be considered, far exceeded my warmest anticipations." Cooper's method consisted of a lower temperature and the admission of fresh air into the house.

In 1838 Sir Joseph Paxton also achieved no small measure of success by maintaining a purer atmosphere. At the same time, Lindley was much startled by these new conditions of culture, and we find him writing as follows: "The success with which epiphytes are cultivated by Paxton is wonderful, and the climate in which this is effected, instead of being so hot and damp that the plants can only be seen with as much peril as if one had to visit them in an Indian jungle, is as mild and delightful as that of Madeira."

From this time onwards we can find a few, but only a very few, growers who attempted the cool-house ideas. Among these was Donald Beaton, who for a few years cultivated Mr. Harris's plants at Kingsbury. The means for spreading knowledge in these early days were few and far between, so much so that the general community of Orchid amateurs reaped little benefit from these isolated methods of success. It remained for the Royal Horticultural Society to give to the horticultural world the full particulars of James Bateman's method, which may reasonably be said to have inaugurated the cool-house treatment which proves such a welcome addition to our Orchid collections of the present day.

The following is a report of the Paper read by James Bateman, August 25th, 1863.

"I have much pleasure in forwarding for exhibition before the Floral Committee the specimen of *Epidendrum vitellinum* that accompanies this Paper, and which I have little doubt the Committee will agree with me in regarding as eminently beautiful. It is not, however, with a view to the merits of the plant as an attractive object that I now wish to direct attention to it, but rather in so far as it may be taken as an illustration of the success which has attended the adaptation of the principle of cool treatment in dealing with Orchids from cool countries.

"My first plants of the species were received from Oaxaca, nearly thirty years ago, but although in excellent condition at the

time of their arrival, they succumbed to the intensely hot régime to which, in common with all other epiphytal Orchids, they were subjected in those days. Other individuals were subsequently received by Mr. Barker, some of which he flowered, though so weakly and imperfectly that no true idea had ever been formed of the beauty of the plant until the publication of the figure, prepared from dried specimens, in Dr. Lindley's *Sertum Orchidaceum*. With this figure there appeared also the following remarks, which it is due to Dr. Lindley's prescient sagacity to quote in full:—

“*Epidendrum vitellinum* is undoubtedly the handsomest of its genus when it is in a state of perfect health, a condition in which no one has yet seen it in this country. Let us hope that the accompanying representation, taken from specimens gathered by Mr. Hartweg on the Cumbre of Totontepeque at 9,000 feet above the sea, and in which nothing is in the smallest degree exaggerated, will rouse the possessors of it to exertion, and induce them to give it the care to which its singular merits entitle it. In what is known of its habits in its native country we possess the key to its proper management, and the explanation of any failures that have accompanied its cultivation up to the present time. It is, strictly speaking, an Alpine plant, rooting among lichens, jungermannias, and other inhabitants of a cool, moist climate, and never exposed on the one hand to a higher temperature than 75 degrees, nor on the other to one lower than 45 degrees, but undoubtedly in its season of rest enduring so small an amount of heat as that. Indeed, the circumstances mentioned by Humboldt that at an elevation of 9,000 feet on the mountains of Mexico there are found dog-roses and strawberries mixed with pepper-worts, and the manita indicates with some accuracy the kind of climate enjoyed by *Epidendrum vitellinum*.”

“Similar advice came from Mr. Skinner, who found the species in Guatemala growing luxuriantly at an elevation where the thermometer ranged from 58-38 degrees; we cannot therefore wonder that the plant should

have found itself ill at ease when placed among East Indian Orchids that will thrive in a temperature nearly twice as high as that which is proper to itself. The real marvel is that we should have persisted so long in a course of unnatural treatment that, at a great sacrifice of comfort, labour, and expense, resulted in a uniform failure from which an adherence to the ordinary principles of cultivation would have effectually saved us.

“Something, perhaps, might be due to the circumstance that, in the infancy of Orchid growing, *one* house was expected to receive in its comprehensive embrace all epiphytal Orchids whatsoever, no matter whether they came from the sultry and pestilential coasts of Africa and the East Indies, or from the mild and pure air of the Mexican and Peruvian Andes. Still, after every allowance has been made for circumstances and conditions which, however applicable to Orchid growing in its early days, have long since ceased to operate, the extraordinary fact remains unquestioned, that for five-and-twenty years we have constantly refused cool treatment to Orchids from cool countries, and because they pined and died under the hot treatment to which alone they were admitted, we have all but despaired of their cultivation. In dealing with other plants we have never acted so unreasonably, and I have yet to learn that our ancestors ever attempted to grow potatoes in a hothouse or pine apples in a cold frame.

“Happily the spell was at length broken by Messrs. Jackson, of the Kingston Nursery, and shortly afterwards by Messrs. Veitch, who, having tried in 1860 the effects of placing some Guatemala Orchids in a cool house, were almost astonished at their own success. Still more recently, Mr. Rucker and Mr. Day have built cool houses with the most satisfactory results, while Mr. Skinner, dispensing with all the usual horticultural appliances, has found that *Lycaste Skinneri* is perfectly at home in an ordinary drawing-room.

“Encouraged by these examples, and being well aware of the beauty of many Mexican and Peruvian Orchids, I was induced this

Spring to undertake the construction of a small house, the temperature of which should scarcely exceed that of an ordinary greenhouse. Taking advantage of an unemployed portion of a back wall, about 20 feet long by 10 feet high, I reared against this a row of glazed sashes, which rested at rather a steep incline upon a front wall about 4 feet in height. Against this was fixed a stone shelf 4 feet wide, which, with a passage of about the same dimensions along the back wall, made up the entire width of the house. A hot-water pipe that may be used or not, according to circumstances, was borrowed from an adjoining plant-stove, and air was admitted by ventilators at a low level in the front wall and at a high level in the wall behind. To this wall there was also affixed an open trellis-work shelf about a foot wide at a short distance from the glass.

"It is clear that nothing can be simpler than these arrangements, which at the expense of about £35 have supplied me with an Orchid house that has already yielded me more enjoyment than I ever derived from houses of ten times greater pretension. The plants, consisting of *Odontoglossums*, *Lælias*, *Lycastes*, etc., have now been half a year in this house, and have charmed me by the progress they have made, and which is quite as striking in a variety of other examples as in the case of the *Epidendrum vitellinum* that I have now selected for exhibition. I shall, however, reserve my remarks on other species for a future occasion, and shall, in the meantime, strongly urge upon the Fellows of the Horticultural Society, and indeed upon horticulturists generally, the expediency of constructing small cool houses, and of thus judging for themselves as to the fund of interest and pleasure that is at length opened to us in the cool treatment of Orchids from cool localities.

"I ought to add that a cool house must be kept damp as well as cool, particularly during the summer months, and while the sun is vertical it ought to be shaded with tiffany for a few hours in the day. The plants may be grown either on logs of wood or in pots. Many of the *Lælias* and *Epidendrums*

succeeding best upon the former, while the latter are invariably preferred by the *Odontoglossums*. For these last I employ a mixture composed of broken potsherds, fibrous peat, and sphagnum in nearly equal proportions, which my gardener, Mr. Sherratt, finds preferable to all others."

ORCHIDS FOR AMATEURS.

THE month of August is never a very interesting time for English amateurs, it may well be called the holiday season, for both the owner and his plants appear to have their minimum amount of trouble. For many past weeks the heat-loving Orchids have had a very beneficial season, in fact, one closely resembling that of their native home. There has been no anxiety on the mind of the cultivator regarding the maintaining of suitable night temperatures, even the heating apparatus has had its holiday, and may now be carefully examined for any defects and consequent necessary repairs. It is bad policy to wait until some serious breakdown occurs, for to attend to alterations and repairs during a severe frost is exceedingly risky, and yet this is usually the time when accidents occur. While fine weather lasts every opportunity should be taken to have all structural repairs finished before the advent of winter. No one fully realises the immense amount of damage done to plants through leaky roofs and cracked panes of glass which allow a constant draught of cold air to fall upon the plants.

Towards the end of August many *Cattleyas* and similar species will have completed their new bulbs. As soon as this is noticed every care must be taken to get the bulbs fully ripened, for unless this is properly done the plant is unable to show forth its full beauty when the flowering season occurs. This ripening process must take place gradually. Any sudden exposure of a tender plant to direct sunshine and dry air will cause considerable damage to be done to the foliage and render the bulbs unsuitable for good growth to be made during the following

season. By gradually lowering the temperature and reducing the shading it will be found that the plants slowly accustom themselves to the different atmosphere without any harm.

In nearly every greenhouse, no matter of what shape or construction, there can always be found a place where the atmospheric conditions are suitable for a resting plant. Sometimes the shade of an adjacent tree or building will prevent the fiercest midday sun from burning the tender foliage, or the shading may be greatly reduced on one portion only of the house. It is almost impossible to make every plant complete its season's growth at the same date, even if the various species and hybrids would allow such an event, so the amateur must take every care to select conditions of culture that will properly ripen the bulbs in order that the best flowering results may be obtained. Unripened plants are a continual source of trouble throughout a long winter; not only are they the first to be attacked by disease and insects, but they are most disappointing when, during the spring time of the following year, very little energy is displayed in the new growth.

Sun and ventilation are equally important factors in the ripening process, yet while the latter is generally given in full quantity, often to excess, there is with the majority of amateur cultivators a very decided timidity in allowing sufficient fresh air to reach their plants. As soon as the bulbs show signs of finishing their growth, which can generally be noticed by the apex of the bulb or the flower sheath being clearly visible, it is then necessary to allow them a free circulation of air, not only during the daytime, but also at night. This method will cause the plant to produce numerous additional roots, and the bulbs rapidly swell to an astonishing extent. At the same time, they acquire that healthy bronze tint so much admired by all our successful cultivators.

The proper time to repot a *Cattleya* is often a vexed question with amateurs. No definite date can be given, for every plant must be taken in hand separately and treated according to its requirements. When the new bulb reaches a certain stage of advancement

fresh roots will push forth from its base, and it is just when these are visible that the most favourable time for repotting occurs. Should the plant receive any shock during the operation it will not have many days to wait until the roots enter the new compost and restore the plant to its former position of health. It will thus be seen how very detrimental is the method of potting a plant several weeks before the new roots appear, for an equal period must elapse before the plant has a chance of recuperating itself.

The roots of most Orchids are stiff and brittle, and will not allow of much bending; any attempt to induce them to grow in a certain direction must be done with great care or considerable injury may be done. For this reason it will be unnecessary to explain what a bad practice it is to leave Orchids which require repotting until the new roots have grown to a length of several inches.

The compost best suited for *Cattleyas* is a mixture of *Al* fibre, *osmunda* and sphagnum moss, although good peat gives excellent results, but the difficulty of obtaining it in suitable fibrous condition is becoming greater every year. Many excellent results have been obtained by *osmunda* alone, although in some instances this material has had a burning and blackening effect on the tips of the new roots. It is difficult to determine the cause, some growers ascribing it to the grade of material being too coarse, others to the salt water with which it has come in contact during shipment. Experiments have shown, however, that very little, if any, of this detrimental effect takes place when a moderate supply of sphagnum moss is included in the compost. Probably a neutralising effect is obtained by so doing. *Polypodium* fibre often proves useful, but unless great care is used in watering it will be found that this material soon becomes sour and unsuitable to the plant. No doubt it is best used when well mixed with *osmunda* and sphagnum.

Another difficulty with which amateurs are often troubled is, should a plant be repotted when it has a flower sheath, or should the operation be deferred until after the blooms

are cut. The common practice of bygone days was never to repot a plant until after flowering. Good cultivators now often break this old rule and treat the plants according to their condition. If the specimen has been well cultivated in the past it will generally be found that the old ball of compost is in a sound and sweet condition, and all that is then required is a small quantity of fresh compost for the new roots to enter as soon as they emerge from the newly made bulb.

In many cases this new bulb will be formed near the edge of the pot, and in these cases it will be necessary to carefully place the old ball of roots and compost into a clean pot just large enough to allow about an inch of fresh compost being worked in on the side nearest the new bulb. The roots will then freely enter this and greatly help in strengthening the flower spike. Plants treated in this way will suffer no harm whatever, while the flowers are often much improved in size and texture.

Now there is the other side of the question

to be considered. The old compost often gets into a sour and rotten condition, such that only complete renewal will carry the plant safely through another season of growth. This means that every root must be disturbed in order to remove the old compost, thus resulting in a severe check to the plant should it be in a growing condition. Now it is easy to understand how detrimental to the flower buds such drastic treatment must be. The safest method is to defer the repotting of those plants until after the flowers have faded.

Of course, the majority of amateurs wish to see their plants flower annually, and rightly so from their point of view, but there are not a few Orchidists who consider that good specimen plants do them more credit than poorly produced blooms. There is no doubt that plants which have their compost in such a rotten condition as to require complete renewal cannot really be in their full state of vigour, and, consequently, the flowers will not be seen in their finest state of perfection.



Interior view in the Establishment of Messrs. Wm. J. Biggs & Co., Enfield, Middlesex.



Lælio-Cattleya Trimyra. (R.H.S. Journal.)

The above illustration gives a fair idea of the large size and form of this pretty hybrid in the collection of Sir Trevor Lawrence, Bart. Its chief attraction is the beautiful orange-yellow colour suffused throughout the whole flower. The name *Trimyra* is derived from its parents *Cattleya Trianæ* and *Lælio-Cattleya Myra* (*C. Trianæ* $\times$ *L. flava*), and it is surprising how the yellow colour of *L. flava* is carried forward in such a remarkable manner. Awarded First-class Certificate, Royal Horticultural Society, April 2nd, 1912.

MESSRS. JAMES VEITCH & SONS: THEIR ORCHID COLLECTORS.

WITH the forthcoming retirement of Sir Harry Veitch, the present is an opportune occasion to briefly review the leading points in the history of the firm of Messrs. James Veitch and Sons, Chelsea, more especially regarding their connection with Orchids. For more than a century Messrs. Veitch have been interested very prominently in horticulture, and few Orchidists of the present day know to what extent they are indebted to them for their laborious work in past years.

It is hardly necessary to point out how comparatively few were the known species when Messrs. Veitch decided to despatch travellers for the purpose of collecting plants in distant lands. William Lobb, being a proficient botanist, was selected to go on a mission to various parts of South America, and he sailed from Plymouth in 1840 for Rio Janeiro. On his arrival in Brazil he first proceeded to the Orgãos Mountains, where he met with several beautiful and notable Orchids which at that time were extremely rare in English gardens. He continued travelling until 1857, making during this time several visits to England, but died at San Francisco, in the autumn of 1863.

Thomas Lobb, brother of the above, left England in 1843 for Java and the adjacent islands. Upon his return home he decided to visit Calcutta, leaving England on December 25th, 1848. During the twenty years or upwards he travelled for the Veitchian firm, he visited the Khasia Hills, Assam, and other parts of North-east India, and subsequently Moulmein and parts of Lower Burmah, sending home from these districts most of the finest Orchids found there, many previously known to science, but introduced by him to cultivation for the first time. Worthy of mention are *Vanda coerulea*, *Cœlogyne lagenaria*, *C. maculata*, *Aerides Fieldingi*, *A. multiflorum* Lobbii, *A. m. Veitchii*, *Dendrobium infundibulum*,

Calanthe rosea, and *Cypripedium villosum*. From the southern parts of the Malay peninsula he sent home *Vanda tricolor*, *V. suavis*, *Cœlogyne speciosa*, *Calanthe vestita*, *Cypripedium barbatum*, and others. Lobb subsequently went to the Philippine Islands, and collected *Phalænopsis intermedia*, the first natural hybrid to be proved by artificial means. He also collected many herbarium specimens, a list of which is given by Planchon in *Hooker's London Journal of Botany*, 1847. Thomas Lobb died on April 30th, 1894, at Devoran, in Cornwall, at a very advanced age.

Richard Pearce was sent to Chili, Peru and Bolivia during the years 1859-1866, but although regarded as one of the best of botanical collectors, he does not appear to have been very successful with Orchids. He died at Panama, July 17th, 1867.

John Gould Veitch was a collector in Japan, South Sea Islands, and Australia, from 1860-1870. His chief collections comprised many choice coniferous trees. His death took place in August, 1870, at the early age of 31.

Bowman left England early in 1866 for Brazil. His journeys, however, were short, for he died on June 25th, 1868, and was buried in the British Cemetery at Bogota.

Henry Hutton went to Java and the Malay Archipelago. He commenced his work in 1866, but the climate proved too much for his delicate health, and he died in 1868. His name is associated with *Cymbidium Huttoni*, which he introduced from Java, together with *Saccolabium Huttoni*, from the same country, and *Dendrobium Huttoni* from the island of Timor in the Malay Archipelago. He was also successful in re-discovering and sending home *Vanda insignis*.

Carl Kramer was despatched to Japan in 1867, and afterwards to Costa Rica. He proved quite unsuitable for the work he had undertaken. His name is associated with

Odontoglossum Kramerii, a species which he introduced from Costa Rica in 1868.

Gottlieb Zahn travelled in Central America, 1869-1870. The main object of his journey was the introduction of the rare *Miltonia Endresii*, discovered by Warscewicz about 1849, but which had previously resisted all attempts at introduction. Zahn was equally unsuccessful with this plant. In 1869 he was proceeding to Costa Rica, when he perished by drowning.

George Downton received his early training in horticulture when under Mr. T. Challis, V.M.H., at Wilton House, Salisbury. In 1870 he went to Central America, from whence he sent several consignments of Orchids to Chelsea. He met Endres, who was also plant collecting for Messrs. Veitch in Costa Rica, and served in the honour of assisting to bring *Miltonia Endresii* safely to England. Downton made several other journeys, but on the termination of his engagement in 1873 settled in Central America, where he died in 1895.

J. Henry Chesterton was a very successful Orchid collector over a wide area in South America during the period 1870-1878. His special task was the introduction of *Miltonia vexillaria*, which had been made known by other travellers, although no living plants came to this country. After considerable difficulty Chesterton not only discovered its habitat, but succeeded in getting live plants to Chelsea, where the first one flowered in 1873. *Odontoglossum crispum* also received his attention, a variety bearing the name of *Chestertonii* being at one time well-known. He also sent home the beautiful *Masdevallia coccinea Harryana*. This noted man continued to collect plants, although in later years on his own behalf. He died in South America, 1883.

A. R. Endres was engaged to continue Zahn's work, who, as previously mentioned, was drowned. Endres collected *Miltonia Endresii*, *Cattleya Dowiana*, and many others of somewhat poor horticultural value. His connection with Messrs. Veitch terminated in April, 1873.

Gustav Wallis was born May 1st, 1830, at

Lüneburg, Hanover, and was deaf and dumb until six years of age, yet, strange to relate, he subsequently became very proficient in foreign languages. In 1856 he went to Brazil in connection with a German horticultural establishment, and in 1858 he was engaged by Linden, when he commenced his remarkable journey across the continent of South America, from the mouth to the source of the Amazon. In 1870, he entered Messrs. Veitch's service, and proceeded to the Philippines in search of *Phalænopsis*, but does not appear to have met with much success. In 1872 he was sent to New Grenada, and in 1875 he explored the north and central regions of South America. Wallis next visited Panama, where he was dangerously ill with fever, from which he somewhat recovered, but a second attack proved fatal, and he died there, June 20th, 1878. He will best be remembered by *Masdevallia Wallisii* and *Epidendrum Wallisii*.

Walter Davis went to Chelsea in 1870 and served under John Dominy in the New Plant Department, eventually becoming foreman of the Nepenthes and Fine Foliage Plants. In 1873 Davis was selected with the special object of visiting South America, for the purpose of securing a quantity of *Masdevallia Veitchiana*, then very scarce. He met with much success, and also sent home others of this genus, one of which, proving to be new, was named *Masdevallia Davisii* by Professor Reichenbach. Some idea of the remarkable enthusiasm of this man may be obtained from the fact that during his stay in South America he crossed the Cordilleras of the Andes in Peru and Bolivia no less than twenty times, at elevations of 14,000 to 17,000 feet, and he traversed that vast country from one side to the other, along the whole length of the Amazon valley.

Peter C. M. Veitch collected in Australia, South Sea Islands and Borneo, during the years 1875-1878. The whole of his collection of plants made in the Fiji Islands was lost in a gale at sea, and in 1877, when again visiting Australia, he had the misfortune to be shipwrecked off the north coast of that country, and for a second time everything

was lost. Although fairly successful with many plants, he does not appear to have done much with Orchids.

Guillermo Kalbreyer left England in 1876 for the West Coast of Africa in search of tropical plants. In July, 1877, he returned to England, bringing a collection of plants which included two new Orchids:—*Brachycorythis Kalbreyeri*, a terrestrial species, named by Reichenbach in compliment to the discoverer, and *Pachystoma Thomsoniana*, an epiphyte, named, at Kalbreyer's request, in honour of the Rev. George Thomson, a missionary in that unhealthy district. His next journey was to Colombia, his principal plants being *Odontoglossum Pescatorei* and *O. triumphans*. In July, 1878, he again visited Colombia, and sent home some extraordinary forms of *Odontoglossum Pescatorei*, including *O. Pescatorei Veitchii*, and *O. triumphans*, *O. tripudians*, *O. hastilabium*, *O. coronarium*, *O. crocidipterum* and *O. blandum*, the latter a very difficult species to import alive. Kalbreyer returned to England with a large and choice collection of Orchids. In September, 1879, he commenced his fourth journey to Colombia, this time travelling down the River Magdalena to the Central and Western Cordillera. It was here that he found the wonderful *Anthurium Veitchii*, with leaves over six feet in length, climbing trees more than 60 feet in height. Orchids were again collected, and included *Odontoglossum ramosissimum*, *O. sceptrum*, *Miltonia vexillaria*, *Cattleya aurea*, *C. Warscewiczii*, *Cypripedium Rœzlii*, *C. Schlimii alba*, and several interesting *Masdevallias*. Several consignments of these were sent to Chelsea, and in September, 1880, Kalbreyer returned to England, bringing with him many living plants and a great collection of dried Ferns, comprising some 360 species, of which 18 were new to science. His last journey for Messrs. Veitch was commenced in December, 1880, when he once again visited Colombia. *Odontoglossum crispum* was mainly collected, the plants being brought to England in June of the same year. Not content with this country he decided to finish his days in

Colombia, so once again he crossed the ocean, and arriving at Bogota started business as an Orchid exporter. His death took place in the autumn of 1912.

Christopher Mudd, son of a former curator of the Cambridge Botanic Gardens, went on an expedition to South Africa in 1877. The mission was practically a failure, and Mudd eventually settled in New Zealand.

F. W. Burbidge started for Borneo in 1877, his special object being the introduction of certain Pitcher Plants known to inhabit that island. His Orchids included *Phalænopsis Mariæ*, *Dendrobium Burbidgei*, and *Aerides Burbidgei*, all rare. On his return from Borneo in 1879, Burbidge was appointed curator of the Botanical Gardens at Trinity College, Dublin. His death took place at Dublin, December 24th, 1905.

Charles Maries was engaged during the years 1877-1879 as a collector in Japan and China. He does not appear to have had any connection with Orchids.

Charles Curtis, collector in Madagascar, Borneo, Sumatra, Java, and the Moluccas, 1878-1884. His first trip was to Mauritius and Madagascar, where he collected several interesting Orchids. On the trip to Borneo Curtis was accompanied by David Burke, who returned with the collection made in Sarawak. The plants brought home by him included *Cypripedium Stonei*, *C. Lowii*, and many *Vandas*. Curtis next proceeded to Pontianak in Dutch Borneo, with the object of acquiring a consignment of *Phalænopsis violacea*, then very rare. On the termination of his engagement in 1884, Curtis was appointed Superintendent of the Botanic Gardens at Penang, from which he retired in December, 1903. In commemoration of his services to botany, *Cypripedium Curtisii* bears his name.

David Burke was born in Kent, 1854, and after entering the employ of Messrs. Veitch was sent on a trial trip to Borneo with Curtis. His next mission was to British Guiana, in 1881, where he gathered the rare *Zygopetalum Burkei*. Subsequent journeys included two to the Philippine Islands for *Phalænopsis*, two to New Guinea, and one,

in 1891, to the then newly-annexed provinces of Upper Burmah for Orchids. During the years 1894-1896 he made three trips to Colombia for *Cattleya Mendelii*, *C. Schröderæ*, *C. Trianæ* and *Odontoglossum crispum*. Burke's last journey was to the Moluccas, and in the island of Amboina, belonging to the last-named group, he died, April 11th, 1897.

James Herbert Veitch travelled to India, Malaysia, Japan, Corea, the Australian Colonies and New Zealand, 1891-1893. He cannot be said to have taken much interest in Orchids, for there is little recorded in connection with his journey.

E. H. Wilson journeyed to Central and Western China and on to the Tibetan Frontier, 1899-1905. His remarkable collections of Chinese plants and seeds have been freely spoken of in the various horticultural journals. Some idea of their magnitude may be gained from the fact that during five years they amounted to 25,000 dried specimens, representing some 5,000 species; seeds of 1,800 species; and no less than 30,000 bulbs of new and rare species of *Lilium*, etc. *Cypripedium Tibeticum* was introduced by Wilson, and flowered with Messrs. James Veitch and Son, June, 1905. *Cymbidium Wilsoni* also bears his name.

ROYAL HORTICULTURAL SOCIETY.

SUMMER EXHIBITION AT HOLLAND HOUSE.

July 1st, 2nd and 3rd, 1913.

MEMBERS of the Orchid Committee present: Sir Harry J. Veitch (in the chair), Mr. James O'Brien (hon. sec.), Sir Jeremiah Colman, Bart., Messrs. de B. Crawshay, W. Bolton, Gurney Wilson, A. Dye, S. W. Flory, R. G. Thwaites, W. H. White, W. P. Bound, Walter Cobb, A. McBean, Stuart Low, Wilson Potter, W. H. Hatcher, H. G. Alexander, J. E. Shill, H. J. Chapman, R. Brooman-White, R. A. Rolfe, W. Waters Butler, G. F. Moore, F. Sander, J. Charlesworth, C. J. Lucas, J. S. Moss and A. A. Peeters.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate, was awarded a Large Silver Cup for a very beautiful exhibit of Orchids. A special feature was the fine show made by specimen *Odontiodas*, one of which received Cultural Commendation. Many varieties of *Odontioda Papilio gattonensis* were staged. *Cypripediums* included *callosum* *Sanderæ* with eight flowers; *Odontoglossums* were well represented, one of the best being *Od. Lady Roxburgh cirrhosum* × *percultum*. The yellow *Lissochilus speciosus*, *Sobralia Colmanæ*, *Miltonia Lambeauiana*, as well as numerous botanical specimens made up a most effective and praiseworthy group.

Messrs. Sander and Sons, St. Albans, were

awarded the Coronation Cup for the finest exhibit in the Show, and a Gold Medal. The group contained many superb specimens of *Phalænopsis Rimestadiana* arranged on an elevated centre, while underneath their graceful spikes were masses of *Miltonia vexillaria*. At the extreme ends of the group were magnificent specimens of *Cattleya Warscewiczii Sanderiana*, many of which had from five to seven flowers on a spike, and possessed very dark and large labellums. *Miltonia Sanderæ* and *Cattleya Mossiæ Dreadnought* were two specialities that obtained awards. Well-flowered plants of *Dendrobium Dearei*, the new *Miltonioda Cooperi*, *Acineta chrysanthæ*, the pretty *Cypripedium Charles Sladden* and *Odontoglossum Uro-Skinneri album* were also shown. Along the front row were various species of botanical interest, many of which, if not new, were very rare, while in prominent positions were selected varieties of the numerous hybrids for which Messrs. Sander have long been famous.

Messrs. Charlesworth and Co., Haywards Heath, were awarded a Gold Medal for a magnificent exhibit of beautiful hybrids and rare species. A novelty was to be seen in *Odontioda Brewii* (*Charlesworthii* × *Harryanum*) with a large flower of deep bronzy-red

colour; while *Odontioda Wilsonii* "The President" was the finest form yet seen of this hybrid between *C. vulcanica* and *O. Pescatorei*. Several well-cultivated specimens of the Madagascan *Grammangis Ellisii*, which secured Cultural Commendation, and *Spathoglottis plicata* were noticed. *Odontiodas* and *Odontoglossums* were shown in very fine form, the latter including *President Poincaré* and *Olympia*, both of which were excellent examples of the genus. *Lælio-Cattleya* "The President" had immense bulbs, and carried eight richly coloured flowers. *Æranthus grandiflorus*, *Cymbidium tigrinum*, as well as many rarities, were to be seen in the front, while along the back rows were numerous specimens of various summer flowering hybrids for which this firm has long been celebrated.

Messrs. Mansell and Hatcher, Rawdon, Leeds, were awarded a Silver Cup for a very tastefully arranged group, the centre containing a fine specimen *Miltonia vexillaria* "Queen Alexandra," *Cattleya Warscewiczii*, with 13 large flowers, and some excellent plants of *Odontoglossum Williamsianum*. A distinct selection of *Lælio-Cattleya Aphrodite*, several good *Cattleya* hybrids, and albino species were to be seen in prominent positions. The *Odontoglossums* included *McNabianum*, of bright colour, *Ossulstonii*, with numerous flowers, and choice varieties of *crispum*. A very pretty effect was given by including dwarf spikes of *Disa grandiflora* among the decorative ferns, and foliage plants.

Messrs. Stuart Low and Co., Bush Hill Park, secured a Silver Cup for an extensive and interesting exhibit, the specimens of *Renanthera Imschootiana* being the darkest coloured forms yet seen, and making an effective contrast to the white flowering *Phalænopsis Rimestadiana*, of which good specimens were also shown. A choice bloom was to be seen on *Cattleya Mossiæ Wageri* variety *Princess Mary Mestchersky*, and a magnificent form of *Cattleya Dupreana* was much admired. *Cattleya Mendelii* Sunray had the petals flushed on their centres with bright purple, the lip also being of the same colour. Strong plants of *Vanda teres* were

along the back row, and at various places of advantage were excellent specimens of the best species, including *Stanhopea tigrina*, *Chysis bractescens*, *Acineta densa*, and the very rare *Phalænopsis Rimestadiana alba*.

Mr. E. V. Low, Haywards Heath, secured a Silver Banksian Medal for a group of choice Orchids, which included *Cattleya Mendelii Lambeauiana*, a pure white flower with a bluish tinge on the labellum, *Cypripedium Lawrenceanum Hyeaenum*, *Cyp. callosum Sanderæ*, as well as *Cattleya Mossiæ Wageri*, represented the albino section. *Cypripedium Goweri magnificum*, with extremely dark flowers, was well grown. The curious *Nanodes Medusæ* and *Bulbophyllum barbigerum* were also included.

Mr. Sidney Flory, Twickenham, was awarded a Silver-gilt Flora Medal for a group containing an interesting selection of the pretty-leaved *Anæctochilus*. *Cypripediums* were represented by *Stonei* and a very good form of *Mary Beatrice*. *Cattleya Gaskelliana alba* and *Lælio-Cattleya Rubens* appeared to advantage. Several excellent *Odontoglossum* hybrids and various *Cattleya* species helped to make a very pretty exhibit.

Mr. Harry Dixon, Spencer Park Nursery, Wandsworth Common, received a Silver Flora Medal for a nice group of various species and hybrids. *Cattleya Mossiæ Wageri*, *Cymbidium Lowianum* and *Odontoglossum Wilckeanum* were all well-grown. Several hybrids of *Odontoglossum Edwardii* and some *Odontiodas* added colour to the group.

Messrs. Jas. Veitch and Sons, King's Road, Chelsea, were awarded a Silver Flora Medal for an interesting display in which several home-raised plants of *Disa grandiflora* were included. *Lælio-Cattleya Dominiana*, of rich colour, and various hybrid *Odontoglossums* were shown in good form.

de Barri Crawshay, Esq., Rosefield, Sevenoaks, sent *Odontoglossum Boadicea* (*triumphans* × *ardentissimum*), a very large flower, with broad petals, and one of the finest additions to the yellow section; also *Od. Vesta*. See "New Hybrids."

J. Gurney Fowler, Esq., Glebelands, South Woodford, exhibited two strong plants of

Odontioda Lambeauiana, one of which carried a spike of 14 flowers.

W. Waters Butler, Esq., Southfield, Edgbaston, showed *Cattleya Warscewiczii* "J. Charlesworth," a particularly good variety; also *Cattleya Clymene*, a rare hybrid between *C. Warscewiczii* and *C. Rex*.

Mons. Jules Hye de Crom, Ghent, exhibited *Miltonia Hyeana gracilis*, a very distinct flower with rose flushing; *M. Hyeana ardentissima*, creamy-white with a dark centre; and *M. vexillaria gigas*, an extremely large form.

Mr. W. A. Manda, St. Albans, showed *Cattleya Warscewiczii Mandaiana*, with salmon-red coloured flowers, and *C. Mendelii Mandaiana*, with purple tips to the petals.

AWARDS.

FIRST-CLASS CERTIFICATES.

Miltoniodes Harwoodii Fowler's variety (*M. vexillaria* × *C. Noëliana*), from J. Gurney Fowler, Esq.—A beautiful result, and finer in shape and colour than the forms previously seen.

Miltonia Sanderæ (St. André × *vexillaria* G. D. Owen), from Messrs. Sander and Sons, St. Albans.—One of the finest results so far obtained in *Miltonias*. The flowers are white, flushed with rose, the mask on the lip being almost black. The whole flower being exceedingly attractive.

Odontioda Brewii (Charlesworthii × *Harryanum*), from Messrs. Charlesworth and Co. See p. 255.

AWARDS OF MERIT.

Cattleya Mossiæ Olympia, from Messrs. Charlesworth and Co.—A particularly fine form of this well-known species.

Odontioda Wilsonii The President (*C. vulcanica* × *O. Pescatorei*), from Messrs. Charlesworth and Co.—A remarkable result, far superior to the many forms of this hybrid previously seen. Flowers large, white, evenly spotted with violet-purple.

Cattleya Mossiæ Dreadnought, from Messrs. Sander and Sons.—A very beautiful and immense flower, the petals being unusually broad.

Cattleya Magnet var. *Serenata*, from Messrs. Mansell and Hatcher, Rawdon, Yorks.—A very rich form of the hybrid between *Whitei* and *Mossiæ*, first shown by Sir George Holford, March 5th, 1912.

CULTURAL COMMENDATION

To Messrs. Charlesworth and Co., Haywards Heath, for *Grammangis Ellisii*, one specimen having two spikes from one bulb.

To Sir Jeremiah Colman, Bart., for a grand plant of *Odontioda Bradshawia*.

July 15th, 1913.

MEMBERS of the Orchid Committee present:

J. Gurney Fowler, Esq. (in the chair), Mr. James O'Brien (hon. sec.), Sir Harry J. Veitch, Messrs. J. S. Moss, Gurney Wilson, J. Wilson Potter, R. G. Thwaites, F. M. Ogilvie, T. Armstrong, C. H. Curtis, W. Cobb, J. Charlesworth, W. H. Hatcher, J. E. Shill, R. Brooman-White, W. Bolton, C. J. Lucas, H. G. Alexander, A. Dyc, W. H. White, and S. W. Flory.

Messrs. Sander and Sons, St. Albans, were awarded a Silver Banksian Medal for a good group containing *Odontioda Magali* Sander, the attractive *Ancistrochilus Thompsonianus*, and *Platyclinis filiformis*. *Lælio-Cattleyas* were represented by many distinct forms, and a strong plant of *Vanda cœrulea* carried two spikes of large flowers.

Messrs. Charlesworth and Co., Haywards Heath, secured a Silver Banksian Medal for a pretty exhibit of various species and hybrids. The rare *Lycaste trifoliata*, *Anguloa Cliftonii*, a well-flowered plant of *Peristeria elata*, and two neat plants of *Paphinia cristata*. A good dark variety of *Maxillaria nigrescens* was also included.

Messrs. Stuart Low and Co., Bush Hill Park, Enfield, were awarded a Silver Banksian Medal for an interesting group, in which were *Chysis bractescens*, *Aerides multiflorum*, the elegant *Cirrhopetalum pulchrum*, several good *Miltonias* and *Cypripedium Maudia*.

Sir Jeremiah Colman, Bart., Gatton Park, exhibited *Anguloa Cliftonii*, with four flowers, the pretty *Odontioda Papilio gattonensis*,

Catasetum fimbriatum, and the rare *Catasetum Colmanæ*.

E. de Quincy, Esq., Oakwood, Chislehurst, sent *Cypripedium Wiertzianum* (Rothschildianum $\times$ Lawrenceanum), with six flowers.

Mons. H. Graire, St. Fuscien, Amiens, sent *Odontioda Brindejone des Moulinais* (*Odontioda Devossiana* $\times$ *Odontoglossum Arlequin*), with a many flowered spike of reddish-purple blooms.

The Earl of Craven, Coombe Abbey, Coventry (gr. Mr. H. Chandler), exhibited *Lælio-Cattleya Martinetti* Coombe variety, a very distinct form with primrose-yellow sepals and petals and purple lip. The variety of *Mossia* known as *Arnoldiana* was used in the production of this hybrid.

A. W. D. Oakes, Esq., Knockwood, Shortlands, Kent (gr. Mr. Fame), exhibited a good specimen of *Aerides odoratum* growing on a raft and bearing eight many-flowered spikes of bloom.

AWARDS.

FIRST-CLASS CERTIFICATE.

Dendrobium Dearei McBean's variety, from Messrs. J. and A. McBean, Cooksbridge.—A remarkably fine variety of this white flowering species from the Philippine Islands. The plant carried two spikes having a total of twenty flowers.

AWARDS OF MERIT.

Odontioda Cooksoniæ venusta (*O. ardentissimum* $\times$ *C. Noëzliana*), from Lieut.-Col. Sir George Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander).—A very beautiful result in which the large flower is almost covered with brilliant red, the apex of the lip light rose. The spike carried 22 flowers.

Odontioda Thwaitesii "Purple Emperor" (*O. Harryanum* $\times$ *C. vulcanica*), from E. H. Davidson, Esq., Orchid Dene, Twyford.—One of the finest varieties of this handsome hybrid. The plant carried a branching spike of 35 bronze-purple flowers.

Paphinia cristata, from Messrs. Charlesworth and Co.—A very beautiful Orchid, and one, unfortunately, now very scarce. The

comparatively small plant carried a spike of two large flowers, about 4 inches across, white, but almost covered with longitudinal streaks of claret-red. The well-developed labellum is dark purple with white hairs at the apex. Years ago this species was more often seen, but its difficult cultivation seemed to be the cause of its rareness during later times. It is much to be hoped that correct methods of culture can now be given.

MANCHESTER ORCHID SOCIETY.

June 5th, 1913.

MEMBERS of the Committee present: Messrs. Z. A. Ward (in the chair), H. Thorp, J. Evans, D. McLeod, Dr. Hartley, J. Bamber, C. Parker, G. Weatherby, A. J. Keeling, W. Shackleton, A. G. Ellwood, J. Lupton, J. Cypher, and H. Arthur (Secretary).

A Large Silver-gilt Medal was awarded to R. Ashworth, Esq., Newchurch, and a similar award to Messrs. Armstrong and Brown, Tunbridge Wells.

A Large Silver Medal was granted to A. Warburton, Esq., Haslingden, and Silver Medals to Messrs. Cypher and Sons, Cheltenham; Messrs. A. J. Keeling and Sons, Bradford; and the Liverpool Orchid Co.

A Bronze Medal and Cultural Certificate were awarded to Mr. Dalgleish (gr. to A. Warburton, Esq.) for a fine plant of *Cypripedium Rothschildianum* carrying five fully expanded flowers on one stem.

A Bronze Medal and Cultural Certificate were granted to Mr. Weatherby (gr. to Z. A. Ward, Esq.) for *Odontoglossums*, one of which had a spike of 74 flowers.

Other exhibitors included O. O. Wrigley, Esq., Col. J. Rutherford, M.P., Messrs. Stuart Low and Co., and Messrs. Charlesworth and Co.

FIRST-CLASS CERTIFICATE.

Cœlogyne pandurata, a very fine variety, from Messrs. Armstrong and Brown.

AWARDS OF MERIT.

Odontioda Vuylstekeæ Ashlands var., and *Odontoglossum Vertumis*, both the property of R. Ashworth, Esq.

Vol. 3.

THE
ORCHID WORLD.

No. 12.

SEPTEMBER, 1913.



NOTES.

VICARIATE FOR THE REV. J. B. HALL.—The Rev. J. Bernard Hall has recently accepted the country living of Farnham-with-Scotton, near Knaresborough. It was in 1910 that he became the Secretary of the newly-formed North of England Horticultural Society, a position which he is now retaining in an honorary capacity.



AWARD CARDS.—The Council of the Royal Horticultural Society has decided that the Secretary of each Committee must write the name of the certificated plant on the award card given to it, and that such card be also signed by the Chairman. This is on account of some cards having been misplaced, with the result that more than one exhibitor has claimed the same award. We are glad to be able to state that this error has not yet occurred in connection with the Orchid Committee, although the new regulation will greatly assist in its prevention.



ORCHIDS OF SELANGOR.—The *Journal of the Linnean Society*, Vol. XLI., p. 285, contains an account of an expedition made by Mr. N. Ridley to Mount Menuang Gasing, one of the peaks of the range which forms the backbone of the Federated Malay States. The Orchids include *Oberonia grandis*, a new species and probably the largest of the genus. The stems are 12-18 inches long including the spike, and with about six long curved leaves.

VOL. III.

Spikes not very crowded, but flowering to the base. Flowers apparently yellow, with the sepals broad and short. Some eighteen other Orchids are mentioned, mostly of botanical interest.



POLLEN STILL BEING STOLEN.—We have again the unpleasant task of recording the further loss of valuable pollen. At the meeting of the Royal Horticultural Society, August 12th, the pollen was stolen from the *Odontoglossum* Queen Alexandra exhibited by Mr. de Barri Crawshay. Something in the way of very severe regulations will have to be enforced to put a stop to this reprehensible state of affairs. The thieves are evidently experts, and know how to select the most valuable specimens for their contemptible work.



STANHOPEA CONVOLUTA.—The *Botanical Magazine* for August contains a coloured plate of this species, a native of Colombia, where it was first discovered in the province of Antioquia, and imported by M. F. Claes, in whose establishment at Brussels it flowered in September, 1909. The illustration was prepared from a plant presented to Kew by Messrs. Charlesworth in 1911. It is most nearly related, states Mr. Rolfe, to *S. tricornis*, but it has larger flowers, and there are other differences in the structure of the lip.

LÆLIO-CATTLEYA BLACK PRINCE.—A very remarkable variety of this hybrid, between *C. Hardyana* and *L.-C. blechleyensis*, was shown by Count Joseph de Hemptinne at the Ghent Exhibition, August, 1913. The large open labellum was of a colour very rarely seen, being of rich crimson-red, with a glowing overtint. Experts declared it to be one of the most beautiful lips yet produced.



ODONTOGLOSSUM AURICULATUM AUREUM.—A flower of this albino variety, probably the rarest of all the *Odontoglossums*, for there is but one plant known, comes from the collection of Mr. de Barri Crawshay, Sevenoaks. The brown blotching is nearly eliminated, leaving the flower almost pure yellow. The species was first described in the *Kew Bulletin*, 1892, from plants imported by Messrs. Sander with *O. nævium*, the name being given in allusion to the ear-like side lobes of the lip. It is very closely allied to *O. Lindleyanum*, but differs in having a hastately trilobed lip, the disc of which is light purple instead of brown. The sepals and petals are light yellow with a large brown blotch near the apex, and a few much smaller ones below. The long claw of the lip, the side lobes, and crest are white, the disc light purple, passing into light brown towards the apex of the front lobe.



VANDA CÆRULEA.—**TREATMENT OF OLD PLANTS.**—In many collections are to be seen old plants which have become "leggy" and have lost vigour, and to bring such round to a normal state of health requires a considerable amount of care and attention. "Leggy" plants, that is, those which have lost most of their lower leaves and have only a bare stem, should have this cut about two inches below the last pair of healthy leaves, and be potted afresh, giving them a warm, moist and shady position until again re-established. Where, however, the bare stem possesses healthy roots below in the compost, it should not be

cut, but living green sphagnum moss should be tied round with copper wire. This will induce the formation of new roots and, in course of time, the plants may be cut down as desired. Plants which have somewhat exhausted themselves by producing several flower spikes should be re-potted, any dead roots cut away, and also dead foliage removed. Generally a fresh and sweet compost, and a slightly warmer temperature for the first few weeks, are all that this Orchid needs to recoup. Tall plants must always be made very firm in their compost, as if loosely potted they will take longer to obtain a firm hold.—*C. Alwyn Harrison, Oneglia, Italy.*



SOCIETY FOR THE PROMOTION OF NATURE RESERVES.—In view of the dangers which at present seriously threaten the indigenous fauna and flora of Great Britain with extinction, this Society has been formed with the following objects:—1. To collect and collate information as to areas of land in the United Kingdom which retain their primitive conditions, and contain rare and local species liable to extinction owing to building, drainage, and disafforestation, or in consequence of the cupidity of collectors. All such information to be treated as strictly confidential. 2. To prepare a scheme showing which areas should be secured. 3. To obtain these areas and hand them over to the National Trust, under such conditions as may be necessary. 4. To preserve for posterity as a national possession some part at least of our native land, its fauna, flora and geological features. 5. To encourage the love of Nature and to educate public opinion to a better knowledge of the value of Nature Study. These objects are to be obtained by means of the Press, by personal efforts, and by correspondence with local societies and individuals. The Society exacts no subscription from its members, who are elected by invitation of the Executive Committee. All interested in the objects here outlined are invited to communicate with the Secretaries of the Society, Natural History Museum, London, S.W.



Phalaenopses flowering in the collection of O. O. Wrigley, Esq., Bridge Hall, Bury.

PHALÆNOPSES AT BRIDGE HALL.—The photograph which we reproduce shows seven well-grown plants of *Phalaenopsis* in the collection of Mr. O. O. Wrigley, Bury, Lancs. At the meeting of the Manchester Orchid Society, July 3rd, 1913, a Cultural Certificate and Bronze Medal were awarded to the grower, Mr. Rogers, who kindly sends the following particulars:—"Five of the seven plants were purchased in 1904, and for three years their cultivation was attempted in shallow pans, but they gradually became smaller until there was but very little of them left. We then put them into small baskets, with a compost of peat, leaves, moss, sand and a little charcoal. Plenty of water was given during the growing season, but only just sufficient during the resting season to keep the leaves plump. We ventilate freely both day and night at all times, unless we have a thick fog, which oftens occurs in winter time. Since we made the change the plants have continually progressed, one spike of

P. Rimestadiana had thirty-five flowers and buds on one stem."



PHILADELPHIA NOTES.—Orchids were air plants long before aeroplanes were; also safer, and they smell better. And there's lots of hot air for them to thrive on at Atlantic City.—*Horticulture, U.S.A.*



CATTLEYA CITRINA.—I have long had plants, and fancy I still have my very oldest bought many years ago, probably 17 or 18 years, although very small, but it has improved since I came here. I find this plant benefits by a current of air directly brought to bear on it. The door of the cool-house is almost always open in summer and winter, except in frosty or very dry weather, which treatment no doubt helps the species. *Epidendrum vitellinum* also benefits by this free air treatment.—*Eustace F. Clark, Evershot, Dorset.*



Cattleya Warscewiczii (gigas) flowering in the collection of Clement Moore, Esq., Hackensack, N.J., U.S.A. The photograph shows 9 spikes with a total of 69 flowers.

SPECIMEN CATTLEYAS.—A recent issue of *Horticulture*, U.S.A., mentions two fine specimens of *Cattleya Mossiæ*, belonging to the Western Orchid Company, which were exhibited in San Francisco when in full bloom. One plant, grown in a 22-in. pan, bore 90 flowers. The other plant was in a 24-in. pan and carried 150 flowers.



GHENT JURY.—The members of the Orchid Jury at the recent Ghent Exhibition were:—Messrs. J. Charlesworth, R. le Moinier, Ch. Maron, du Trieu de Terdonck, G. Vincke, Van Imschoot, F. Lambeau, Ch. Dietrich, A. Janssens, Ch. Sladden, O. Fanyau, L. Pynaert, and Gurney Wilson (secrétaire général).



VANDA MARGUERITE MARON.—This very

beautiful hybrid was first exhibited by M. Chas. Maron, at the Temple Show, 1903. The parents are *V. teres* and *V. suavis*, and the habit of the plant may best be described as intermediate in character. The fleshy leaves at first sight appear to be terete in fashion, and similar in shape, although somewhat larger, to *V. teres*, but closer examination will show that the *V. suavis* parent is well represented by the longitudinal manner in which the leaves attempt to open along their upper part. The plant takes after *teres* in its shy-flowering nature, but when in bloom amply repays one for the trouble of waiting. The individual flowers measure about three inches across, are of a pale blush-lilac, with many small purple dots. The large lip is light yellow, with the middle lobe bright purple and with darker spots. M. Chas. Maron and Messrs. Charlesworth both exhibited excellent specimens at the Ghent Show, August, 1913.

*Cælogyne Sanderiana.*

CÆLOGYNE SANDERIANA.—This beautiful representative of the genus was introduced by Fostermann, for Messrs. Sander and Sons, in 1887. A native of the Sunda Isles, it has always remained very scarce, and appears to be shy-flowering, although when once the cultural details of the plant are understood, good results follow. In 1892, Mr. W. H. Robins, gr. to Mr. J. Vanner, of Chislehurst, grew a fine plant which produced three spikes, each carrying ten flowers. The subject of our illustration is a strong specimen in the collection of Sir John Edwards-Moss, Bart., Roby Hall, Torquay, who obtained the plant some five years ago. It has recently flowered for the first time, and may be described as an exceptionally well-cultivated specimen. The large flowers have the sepals and petals snow-white, the lip with a bright yellow disc, bearing six fringed keels, the side lobes streaked with brown.



ONCIDIUM MICROCHILUM.—This pretty species was introduced some 70 years ago from Guatemala by Mr. Ure Skinner, who has given the following information concerning its native habitat: "The *Oncidium microchilum* I first found on the top of the 'Cuesta' of Puentezuelas, some thirteen leagues from Guatemala, and sent it to

Mr. Bateman in 1838. It was growing on a bare rock, with a quantity of dead leaves and grasses about its bulbs, and its roots woven into the interstices of the rock and mould about it; very much exposed to the sun, except during the middle of the day, when a ledge of rock seemed to afford it a little shade. I afterwards found it in great abundance on the rocky banks of the river Michatayal. I never saw it except in such situations, generally exposed and always among rocks. It is very fragrant, and in its native habitat I have always observed the sepals and petals darker and more marked than when flowered in England. The temperature generally of the above habitats is 68-70 degrees; and, from being exposed, cold at nights." The glaucous flower stem carries numerous small flowers about an inch across; the sepals and petals brown, marked with yellow; the front lobe of the labellum very small; the side lobes whitish, basally marked with purple.



RODRIGUEZIA SECUNDA.—Of this species Mr. Rand, of Para, Brazil, has written in the New York Horticultural Society's *Proceedings* as follows:—*Rodriguezia secunda* in the shape of a large plant makes a magnificent show. One of my plants is as large as a bushel measure, and had last winter more than 100 long spikes of bloom. This species is no less ornamental in seed than in flower, the capsules bursting and showing the masses of infinitesimal white seeds which look like woolly flowers. It is very common around Para, the mango trees being full of it, and it is in fact almost the only Orchid which is found in the city itself. There is a great difference in the plants; some have thin leaves, few spikes and pale flowers, and others thick, fleshy leaves, and many spikes with rich cherry-coloured blossoms. The best are quite as handsome as *Saccolabium ampullaceum*. *Rodriguezia laxiflora* is a charming little plant, with long pendant spikes of greenish-yellow flowers with small white lip, which fill the whole air with rich spicy fragrance.

CHYTROGLOSSA MARILEONIÆ.

THIS scarce, but nevertheless interesting Orchid is the subject of an illustration in the *Journal* of the Royal Horticultural Society, Vol. I., 1866. The technical description is by H. G. Reichenbach fils, who also wrote the following note, which is worthy of reproduction:—

“On looking back to my past life, there is nothing in it that I value more than the intercourse I have enjoyed with so many distinguished naturalists and travellers. Amongst my most cherished souvenirs, I regard the opportunities I have had of seeing my lamented well-wisher and friend, Dr. Lindley, at four various times of my life. I enjoyed for more than six weeks his company. During the whole of that time I was at work on his collection of dried Orchids, allowed to make copies of all his drawings, and even to take flowers where they could be spared. The fruits of this activity have enabled me to work with great security, knowing pretty well the Lindleyan materials.

“When I met with anything remarkable, I always wrote to Dr. Lindley, who, notwithstanding all his numerous occupations, was ever ready to render justice to any Orchid. I remember very well one foggy November morning, when I made an analysis of a most curious Orchid, of which Dr. Lindley possessed a single zig-zag raceme with a few pellucid flowers. The plant had been gathered at Novo Friborgo, near Rio Janeiro, by the Chevalier Pinel, and Mademoiselle Marie Léonie Pinel had prepared for the Doctor a nice coloured sketch. One flower, the best, was sacrificed for an analysis, and Dr. Lindley attended and watched my dissection. I have just now before me my own sketch. There was no anther, there was no free rostellum to be found, and regarding the plant as a neighbour of *Ornithocephalus*, we wanted a long beak or proboscis as of an elephant. There was, moreover, no stigmatic cavity.

“It was the first Orchid we had ever seen with a very long dorsal sepal and very small

lateral ones added to all the deficiencies noted above, and we looked at each other as two companion generals after a lost battle, and for the whole of the remainder of the day Orchids appeared to us less agreeable than they used to do. I named the plant *Chytroglossa Marileoniæ*, in just and due acknowledgment of Mademoiselle Marie Léonie's merits as regarded the plant.”

A RUSSIAN ORCHID BOOK.

THE ever-increasing interest in Orchids is a sure sign that these flowers are worthy of all the attention now being given them. We are fully justified in using our best endeavours to make this beautiful family of plants still wider known, for, although their cultivation has been taken up in almost every country, there are many lovers of Nature's wonders and beauties who will gladly welcome every detail of information concerning Orchids and their cultivation.

The latest addition to Orchid literature is a comprehensive work by Dr. J. Troyanowsky, the well-known President of the Moscow Orchid Society. This book, written entirely in the Russian language, consists of 160 quarto pages of letter-press, and more than 30 full-page illustrations of various species and hybrids. There are also excellent coloured plates of *Odontoglossum Troyanowskyi*, *Od. crispum Pittianum*, *Cattleya Hardyana* and *Lælio-Cattleya Dominiana*.

Dr. Troyanowsky has been an enthusiastic cultivator of Orchids for 28 years, during which period he has gained considerable knowledge on the best means of culture suitable to the Russian climate. It is with the praiseworthy object of assisting other amateurs, and with the intention of increasing the admiration for Orchids in Russia that he has published this excellent book.

The general arrangement of the book is that of a calendar, giving full cultural directions for each month in the year, and referring to all the various details which from

time to time prove so necessary to amateurs. A useful addition to the work is a number of pages giving tabular details of many species and hybrids. It is worthy of note that the paper, type and general appearance of the work are fully equal to the importance of the subject.

We offer our heartiest congratulations to Dr. Troyanowsky for the praiseworthy and practical manner in which he has encouraged the love and cultivation of Orchids in Russia. The Moscow Orchid Society has just reason to be proud of its President.

NEW HYBRIDS.

ODONTIODA DESDEMONA.—This has been produced by crossing *Cochlioda Nœzliana* with *Odontoglossum Othello* (*Harryanum* × *Adrianæ*). A very fine variety, in which the labellum was particularly well-developed, was exhibited by the raiser, Mr. de Barri Crawshay, at the Royal Horticultural Society, July 29th, 1913, when it obtained an Award of Merit.

SCHOMBOLÆLIA TIBIBROSA.—A very interesting hybrid between *Schomburgkia tibicinis* and *Lælia tenebrosa*. The tall, erect spike carried several large flowers, of a peculiar bronzy-orange colour, the lip brown-rose, with darker rose markings. Raised by Messrs. Charlesworth and Co., and interesting for being the first hybrid between the two genera.

LÆLIO-CATTLEYA FLEUREUÆ.—A flower of this new hybrid comes from Mr. Eustace F. Clark, Evershot, Dorset. The parents are *C. Loddigesii* and *L.-C. Agnes*, the latter being a hybrid between *L.-C. Schilleriana* and *L.-C. callistoglossa*. In general appearance the flower resembles a large form of *C. Loddigesii*; the labellum is prettily crimped at the margin, well open at the shoulders, and has a rich purple blotch on the front of the middle lobe. It is named in honour of Madame Fleureau, of Paris.

ODONTIODA HEMPTINNEANA.—A very beautiful hybrid between *Cochlioda Nœzliana* and *Odontoglossum eximium*, raised by

Messrs. Sander and Sons, and exhibited by them at the recent Ghent Show. The large flower of solid red colour, very bright, and with a narrow rose margin to the segments.

BRASSOCATTLELIA AMABILIS.—Messrs. Sander and Sons have raised this hybrid between *B.-L. Helen* and *L.-C. Martinetii*. This useful addition to the section has bronze-rose sepals and petals, a broad, fringed lip, orange colour in the centre, and deep rose on the margin.

ODONTOGLOSSUM ATALANTA.—With reference to *Odontoglossum Hermione* mentioned on page 255, we have since heard that Mr. W. R. Lee, of Heywood, used this name for an *Odontoglossum* which was awarded a First-class Certificate at Manchester, in 1910, although the parentage was not recorded at the time, and, we believe, has not yet been stated. To prevent confusion, Messrs. Sander have decided to call their hybrid between *Edwardii* and *ardentissimum* by the name *Atalanta* instead of *Hermione*.

CATTLEYA VAN HOUTTE.—This new hybrid, between *C. Warscewiczii* and *C. Lord Rothschild*, obtained a Silver Medal when exhibited by Count Joseph de Hemptinne at the Ghent Show, August, 1913. The flower was of great width, of rose-purple colour, the broad labellum dark crimson with gold veining. A fine result.

LÆLIO-CATTLEYA JESSICA.—A beautiful result obtained by crossing *L.-C. Clive* (*C. aurea* × *L. pumila*) with *C. aurea*, and flowering in Mr. E. R. Ashton's collection, Camden Park, Tunbridge Wells. The light mauve flower has a large labellum, round which extends a broad margin of purple, the shoulders of the lip being equally well coloured.

LÆLIO-CATTLEYA ELSIE LEMARE.—A spring flowering hybrid, raised from *L.-C. Euphrosyne* and *C. Mendelii*. The seedling is five years old, and when exhibited at the Royal Horticultural Society, May 14th, 1913, bore a spike of three flowers, the sepals and petals blush-pink, the lip rose-purple, with a deep yellow throat. Raised by Mr. C. Alwyn Harrison.

AN INTERESTING HYBRID.

*Epi-Lælia Australia.*

EPI-LÆLIA AUSTRALIA.—The flower of this new hybrid, between *Epidendrum ciliare* and *Cattleya Trianae*, is $3\frac{1}{2}$ inches across the petals and 4 inches across the sepals. The back of the sepals is dark rose, but viewed from the front they are very pale rose. Petals white, and considerably broadened by the *Cattleya* parent. Lip pure white with the edges beautifully fringed. The column is quite exposed, and there is a broad yellow line extending from the column for about half an inch down the middle of the lip. Where each flower springs from the stem there is a bract, but naturally not so pronounced as in the *Epidendrum* parent. The whole flower has a beautiful, delicate appearance, and I consider it a most useful addition, not only on account of the flower itself, which is distinct from any other Orchid I know, but also on account of its flowering time being mid-winter. There were only two flowers on the spike, but judging by the parentage, at least four may be expected when the plant is stronger.—*E. Baxter Cox, Adelaide, South Australia.*

AN ENORMOUS ORCHID.

THERE are not a few amateurs who have, from time to time, expressed an opinion that the continual collecting of Orchids must, before many more years elapse, cause a serious scarceness of many species in their native homes. Considering the long period necessary for the formation of a large specimen it is quite evident to one and all that many districts have been denuded of their treasures at a far greater rate than Nature can keep pace with the demand.

The first collector to reach a previously unsearched country naturally finds the Orchids in all their glory, just as centuries of time have allowed them to grow undisturbed, and consequently to attain immense proportions. It was only the usual course of events for a collector to secure the largest pieces, which in most instances were fully sufficient to load his oxen or mules and also to form a consignment for shipment home. As one collector after another visited the district, and each gathered only the largest plants he could find, so the size gradually became less and less until, at the present time, we have almost forgotten the wonderful plants which our amateurs of years ago took so much pleasure in acquiring.

We have only to go back to the year 1884—not a long period compared with some subjects, yet with Orchids sufficiently long to show what a great change has taken place—when Messrs. Sander and Sons imported a marvellous specimen of *Cattleya Skinneri* from Costa Rica. This plant formed a symmetrically shaped and compact mass, measuring 7 feet in diameter, over 6 feet in height, and weighing 12 cwt.

This remarkable specimen grew on a species of *Euphorbia* and was carefully watched by its owner, who took great pride in showing it to various plant collectors visiting Costa Rica. Among the visitors was the well-known Roezl, who happened to see the plant in full bloom, when he counted upwards of 1,500 fully expanded flowers on it at one time.

Notwithstanding the most tempting offers from various would-be purchasers, it was not until Messrs. Sander and Sons eventually secured the prize by offering a handsome sum that the specimen was removed from the place it had occupied for so many years. As one can easily imagine, the removal and transit to England was no light task. The tree was cut off beneath the specimen and the smaller branches above were carefully removed. Then the huge packing case which had been specially made was brought into use, and after an immense amount of labour and considerable cost the large package was brought to Puntas Arenas, and from thence by Royal Mail steamer to Southampton.

No sooner had this specimen arrived safely at Southampton than elaborate preparations were made for its cultivation. No ordinary glass structure was suitable for such a wonder, so bricklayers and carpenters were immediately ordered to construct a special house in which the plant was suspended by a chain attached to the roof, while underneath was a large tank of water.

MILTONIA WARSCEWICZII AS A PARENT.

By C. ALWYN HARRISON.

IN the production of bigeneric hybrids no species has been employed to greater advantage than the above, for besides yielding seedlings of great decorative value, it has imparted good constitution and remarkable floriferousness to all its descendants.

An ample proof is afforded in regard to *Odontonia Lairesseæ*. This bigener first bloomed in 1905, and as early as 1908 the writer saw a magnificent specimen, bearing four long branching spikes carrying over 200 flowers, at Messrs. Sander and Sons.

Miltonia Warscewiczii was named after that intrepid Polish collector, who enriched our collections in the sixties and seventies with many handsome plants. It is a native of Colombia, but only found at a lower elevation than the majority of the Colombian

Odontoglossums, and therefore requires a warmer temperature. The cool end of the intermediate house forms an ideal situation.

This species differs considerably in growth and in the inflorescence from a *Miltonia* of the *vexillaria* section, resembling rather an *Oncidium*, and, indeed, *Oncidium Weltonii* is a synonym. It seems to be most successful as the seed parent, and from my own experience is easy to obtain good seed from pods, being usually ripe from nine to ten months after cross fertilisation.

Miltonia Warscewiczii is not very variable, but two distinct and beautiful varieties are *leucochila*, possessing more white than the type, and *picta*, a yellowish form.

The following is a complete list of the hybrids so far derived from this species:—

MILTONIODA.

Cooperi, *M. Warscewiczii* × *Cochloda Nœzliana*. Sander, 1913.

ODONTONIA.

Lairesseæ, *M. W.* × *Odontoglossum crispum*. Lairesse, 1905.

culiginosa, *M. W.* × *O. Pescatorei*. Vuylsteke, 1906.

Lambeauiana, *M. W.* × *O. Lambeauianum*. Peeters, 1910.

Louise, *M. W.* × *O. Ossulstonii*. Charlesworth, 1912.

Edna, *M. W.* × *O. Wilckeanum*. Sander, 1912.

decora, *M. W.* × *O. Adrianæ*. Sander, 1912.

Lælia Sander, *M. W.* × *O. amabile*. Sander, 1912.

Roger Sander, *M. W.* × *O. percultum*. 1912.

St. Alban, *M. W.* × *O. Pescatorei*. Sander, 1912.

Boadicea, *M. W.* × *O. Clytie*. Charlesworth, 1912. In this the *Miltonia* was used as the pollen parent.

Magali Sander, *M. W.* × *O. ardentissimum*. Sander, 1913.

VUYLSTEKEANA HYEANA.

Odontonia Lairesseæ × *Cochloda Nœzliana*. Jules Hye, 1912.

MESSRS. JAMES VEITCH & SONS: ORCHID SPECIES.

AMONG the many species introduced by Messrs. J. Veitch and Sons, the following are of particular interest:—

ANGRÆCUM CITRATUM.—First discovered by the French botanist, du Petit Thouars, towards the end of the eighteenth century in Madagascar, but subsequently lost sight of until a plant, believed to have been obtained through Mr. Ellis, flowered at Chelsea in 1865. At that time *Angræcum citratum* was exceedingly rare in British collections, and continued to be so until the opening of the Suez Canal afforded facilities for the more rapid transmission of plants from Madagascar.

ANGRÆCUM FALCATUM.—A pretty little Orchid of great botanical and horticultural interest from the fact that it was the first *Angræcum* cultivated in Europe, and one of the earliest of the Japanese Orchids ever introduced. It was first sent to this country about the year 1813 by Dr. Roxburgh, but remained lost to cultivation until re-introduced by Messrs. Veitch about 1868.

ANGRÆCUM KOTSCHYL.—Discovered in 1838 by Theodor Kotschy, and in 1876 found by the German Hildebrandt on the coast of Zanzibar. Three years later living plants were sent by Sir John Kirk to Mr. Gerald Walker, from whom plants were acquired which first flowered at Chelsea in the autumn of 1880.

ARACHNANTHE CATHCARTII.—A native of shady valleys in the Eastern Himalayas, where it was first detected by Sir Joseph Hooker, by whom it was sent to the Calcutta Gardens. Repeated attempts were made to introduce plants to England with more or less success, and it flowered for the first time at Chelsea, March, 1870.

ARACHNANTHE LOWII.—Discovered in Sarawak by Sir Hugh Low, but first flowered in this country from specimens sent by Thomas Lobb in 1858. It was later collected by Curtis in the low swampy forests near the

coast of Sarawak. The plant is remarkable for the enormous length of its racemes and for the occurrence of two kinds of flowers on the same inflorescence. Illustrated in the *ORCHID WORLD*, Vol. II., p. 34.

BULBOPHYLLUM LOBBII.—Sent from Java by Thomas Lobb in 1846, and noted for being one of the most showy species of the genus.

CALANTHE ROSEA.—First discovered by Thomas Lobb in Moulmein early in the year 1850, and sent by him to Exeter, where it flowered in the winter of that year.

CALANTHE VESTITA.—First introduced into European gardens by Dr. Kane, who sent the type species and a variety from Moulmein to Exeter in 1848. Shortly after Thomas Lobb sent the same two forms, with another variety since named *Turneri*, from the same district.

CATTLEYA BOWRINGIANA.—Sent to Messrs. Veitch in 1884 from British Honduras, in Central America, by a correspondent, who stated that the plant grows on cliffs by a rapid stream flowing over a succession of waterfalls, where the atmosphere is always highly charged with moisture.

CATTLEYA DOWIANA.—This superb Orchid flowered for the first time in England at Chelsea, in the autumn of 1865. The plants were obtained through Mr. G. Ure-Skinner, whose collector, Mr. Arce, had obtained them in Costa Rica. Plants had previously been sent to this country in 1850, but arriving in bad condition had all died without flowering. It was the wish of Warscewicz, the original discoverer, that his plant should bear the name *Lawrenceana*, in compliment to Mrs. Lawrence, of Ealing, but as his specimens miscarried, this fact was not known until after Bateman had named it in compliment to Captain J. M. Dow, of the American Packet Service.

CIRRHOPE TALUM ROBUSTUM.—One of the largest species of the genus. Sent from

New Guinea by David Burke, then collecting for Messrs. Veitch.

CÆLOGYNE DAYANA.—Imported from Borneo through Curtis, and dedicated by Reichenbach to Mr. John Day, of Tottenham. It flowered for the first time in this country at Chelsea in 1884.

CÆLOGYNE VEITCHII.—A very distinct species, introduced from Western New Guinea through David Burke. The pure white flowers are produced in racemes.

CYCNOCHES PENTADACTYLON.—Introduced from Rio de Janeiro to Exeter through William Lobb in 1841. It first flowered in March, 1842, from which Dr. Lindley described the species.

CYMBIDIUM GRANDIFLORUM.—Introduced to Exeter through Thomas Lobb, the first plant flowering in 1866 at Chelsea. Reichenbach at once described it and named it in honour of Sir Joseph Hooker. The plant had, however, previously been named by Griffith, who originally discovered it.

CYMBIDIUM HUTTONII.—A rare and remarkable species sent from Java by Henry Hutton, in commemoration of whose labours and early death it was named.

CYMBIDIUM WILSONII.—Introduced from the province of Yunnan, South China, through E. H. Wilson, 1901, and first flowered at Chelsea, February, 1904.

CYPRIPEDIUM BARBATUM.—Discovered by Cumming in 1840 on Mount Ophir, near Malacca, in the Malay Peninsula, and sent by him to Messrs. Loddiges, of Hackney, with whom it first flowered. Thomas Lobb collected it three years later in the same locality, and from his importation the plant became generally distributed.

CYPRIPEDIUM CAUDATUM.—Although previously known to science, this species remained unknown to horticulture until introduced by William Lobb in 1847 from Peru, where thirty years afterwards it was collected by Davis, who at the same time sent the variety *Wallisii*.

CYPRIPEDIUM CURTISII.—Discovered in Sumatra in 1882, and introduced by Curtis, whose name it bears.

CYPRIPEDIUM JAVANICUM.—First

discovered by the Dutch botanist Reinwardt on the mountains of Eastern Java, in 1826, though not introduced to European gardens until 1840, when Thomas Lobb sent plants to Exeter.

CYPRIPEDIUM LAWRENCEANUM.—Discovered by F. W. Burbidge, in 1878, in North Borneo, at an altitude of 1,000-1,500 feet. Dedicated to Sir Trevor Lawrence.

CYPRIPEDIUM NIVEUM.—The first appearance of this species came as a surprise. In 1868, Messrs. Veitch received from Moulmein a consignment of plants of a *Cypripedium* supposed to be *C. concolor*, but which, on flowering in the spring of the following year, proved to be the beautiful *C. niveum*.

CYPRIPEDIUM PHILIPPINENSE.—This species, discovered by the late J. G. Veitch in the Philippine Islands, and sent by him to Chelsea in 1861, bloomed for the first time in March, 1865. It was found established on the roots of *Vanda Batemanni*, to obtain which was the object of the voyage, and for which the traveller long sought in vain; but once happily running the boat ashore in a bay of a small island, he was delighted and astonished to find the neighbouring rocks covered with the plant of which he was in quest.

CYPRIPEDIUM SUPERBIENS.—It is generally believed that only two plants of this species have ever been introduced, and all now growing in Orchid collections have been derived from the originals. Messrs. Rollison introduced the first plant from Java or Assam, and sold it in 1855 to Consul Schiller, of Hamburg. The second plant appeared in an importation of *Cypripedium barbatum*, collected in 1857 by Thomas Lobb on Mount Ophir, near the southern extremity of the Malay Peninsula.

CYPRIPEDIUM TONSUM.—Discovered in the mountains of Sumatra by Curtis, who collected it, mixed with *Cypripedium Curtisii*. The specific name *tonsum* refers to the absence of black marginal hairs that fringe the petals of closely allied species.

CYPRIPEDIUM VILLOSUM.—First discovered by Thomas Lobb on the mountains near

Moulmein at 4,000-5,000 feet elevation, and introduced by him in 1853. Has been largely used for hybridising purposes.

DENDROBIUM ACROBATICUM.—Introduced from Moulmein, and named *acrobaticum* by Reichenbach on account of the peculiar growth of the bulbs, which reminded him of acrobatic contortions.

DENDROBIUM ALBOSANGUINEUM.—Introduced in 1851 through Thomas Lobb, who found it on the hills near the Atran river. It occurs in several places of Burmah, always on the tops of the highest trees.

DENDROBIUM ATRO-VIOLEACEUM.—Introduced from Eastern New Guinea, and flowered for the first time in Europe in April, 1890.

DENDROBIUM CRASSINODE.—Sent to Kew and to Chelsea by Col. Benson in 1868, from Moulmein. It flowered simultaneously in both establishments in January, 1869, but had previously been made known to science by the Rev. C. Parish, who sent a sketch of it to Sir W. J. Hooker.

DENDROBIUM CRETACEUM.—Sent to Exeter by Thomas Lobb, who detected it in the Moulmein district. The specific name, from *creta*, "chalk," refers to the colour of the flowers, which appear in May and June.

DENDROBIUM HUTTONII.—A very beautiful variety of *D. superbum*, the sepals and petals being pure white. Discovered in Timor, one of the islands of the Malay Archipelago, by Henry Hutton in 1868.

DENDROBIUM JAMESIANUM.—Introduced through Col. Benson by whom it was discovered in British Burmah, and dedicated by Reichenbach to the late Mr. James Veitch, junior.

DENDROBIUM JOHANNIS.—A peculiar species having brown twisted sepals and petals, and a bright yellow lip, discovered in 1865 in North-East Australia by the late John Gould Veitch, who sent plants to Chelsea, where it flowered in August of that year.

DENDROBIUM LEUCOLOPHOTUM.—Introduced through Curtis from the Malay Archipelago. It has the habit of flowering during November and December. The

specific name is from the Greek, "a tuft of long white hair," and refers to the long one-sided racemes of white flowers, which bear a fancied resemblance to a horse's mane.

DENDROBIUM MACROPHYLLUM, VARIETY HUTTONII.—A white variety of the type, and very rare. The plants were sent from the Moluccas by Hutton. The variety of *macrophyllum* known as *Veitchianum* was sent to Exeter in 1846 by Thomas Lobb, who found it in the jungles in the island of Java.

DENDROBIUM SUPERBIENS.—One of the finest of the Australian Dendrobes, a native of York Peninsula and some of the islands in Torres Strait, whence it was introduced by Messrs. Veitch in 1876, through the late Sir William MacArthur, of Sydney.

DENDROBIUM SUPERBUM, VARIETY ANOSUM.—This variety was introduced to England by the collector Cumming, and is remarkable for the almost entire absence of the rhubarb-like odour which characterises the species. Burke's variety, introduced in 1883, has large pure white flowers with delicate purple lines in the throat. Hutton's variety resembles the latter, but the throat is deep purple.

DENDROBIUM TAURINUM, VARIETY AMBOINENSE.—A form of the Philippine "Bull's Head" Dendrobe, introduced through David Burke from the island of Amboina, and first flowered at Chelsea in 1897. The colour of the flowers differ from that of the type, the sepals being greenish-yellow suffused with bronzy-brown; the petals are deep purple-brown, as are the side lobes of the lip, the front lobe more nearly resembling the sepals in colour.

DENDROBIUM TORTILE.—Introduced through Thomas Lobb in 1847 from Tenasserim. The twisted sepals and petals of the flowers suggested the specific name. In colour they are rosy-lilac, with a pale yellow lip blotched with purple at the base.

DENDROBIUM TRANSPARENS.—Discovered by Dr. Wallich in the early part of the last century, but not introduced to European gardens till 1852, in which year Thomas Lobb sent plants to Exeter.

(To be continued.)

SOME IDEAS ON ORCHID HYBRIDISATION.

By J. M. BLACK.

(Continued from Vol. II., page 79.)

C OLOUR transmission of *Cochlioda Noëzliana* and *Cochlioda vulcanica*.

There are now hybrids between *C. Noëzliana* and *C. vulcanica* respectively and most of the more important *Odontoglossum* species, and we are, consequently, pretty well acquainted with their behaviour as parents in the first degree—how they overwhelm almost to extinction the identity of everything with which they are crossed. As a parent in the second degree there is little or no evidence yet of how *C. vulcanica* will act, but it has been demonstrated that the brilliant colour of *C. Noëzliana* may be entirely lost in its secondary hybrids, a really remarkable fact considering that its primary hybrids are frequently richer in colour than itself. Although further great development may safely be predicted in the increasingly important *Odontioda* section of cool-house Orchids, it is going to be no question of crossing and raising with a fixed standard resulting; in *Cochlioda* secondaries, to go no further, there is going to be a wide range of varietal forms—mostly poor, but with compensating good forms—wider extremes than are to be expected in secondaries within the limits of one genus.

One of the most extraordinary species in its genus is *Odontoglossum Harryanum*. It is highly scented, richly coloured, and of a thick, fleshy substance, and with sepals of much fuller dimensions than the petals, and possessing a fine, square, strongly-characterised labellum that is a distinguishing feature in all its offspring, no matter how far removed; but although the flower is large and carried in goodly numbers on a noble spike it can hardly claim to have ever been a really popular Orchid. *O. Harryanum* has been a victim to its own fine qualities. The very fleshiness, or substance, which the Orchid grower admires so much in his flowers has become a defect in *Harryanum*, imparting a heaviness that causes the flowers to droop forward, and the colour has been laid on

with such prodigality as to impart a sense of cloudiness. Its remaining fault is that the flowers do not open fully, being more inclined to offer to view the outer and duller surface of the segments. Yet, paradoxically, the very imperfections of this Orchid have made of it the best of parents. Having a fine constitution, and accommodating itself willingly to be either seed-bearer or pollen parent, it has taken a predominant part in revolutionising the colour, size and vigour of the inmates of the modern cool Orchid house.

Among *Odontoglossums* the two most finished products of Nature found in a wild state are *O. Pescatorei* and *O. crispum*. In importations of the latter a good many blotched forms have been found, no doubt mostly, if not all, of hybrid origin, while among importations of the former very few spotted or blotched forms have appeared, presumably because of its purer descent. The colour on the *Pescatorei* however, whether on the labellum or other segments, is invariably rich, a kind of solid blue-purple, and hybrids from it inherit this colour gladly. *O. crispum* blotchings are more generally chocolates and merging into terra-cotta, in which we may surmise the influence of *luteo-purpureum*, while others more nearly approach the maculations sparingly present in *Pescatorei*, but always some shades less in density, and here we may surmise the influence of *Hunnewellianum*, for among the latter an occasional variety has a violet bloom over the chocolate. The richer colour of *Pescatorei* although sparingly in existence in itself, and usually localised in the labellum, is a factor—if I may be permitted the use of the word—which seems eagerly anxious to escape from the narrow confines assigned to it in this species. A comparison between the hybrids derived from *O. Pescatorei* and those derived from *O. crispum* will nearly always disclose a superiority in colour in favour of the former, the shape in the aggregation being better as well, and this notwithstanding that

Pescatorei has a smaller and thinner flower. Of course, a statement of this kind is meant to convey what is true in a general sense, and freely allows for what would appear to be contradictory evidence in an individual hybrid or particular strain of hybrids. Compare *O. Rolfeæ* (*Pescatorei* × *Harryanum*) with *crispo-Harryanum* (*crispum* × *Harryanum*); *Ossulstonii* (*crispo-Harryanum* × *Pescatorei*), or *Lambeauianum* (*Rolfeæ* × *crispum*) with *amabile* (*crispum* × *crispo-Harryanum*); *Odontioda Vuylstekeæ* (*C. Nœzliana* × *O. Pescatorei*) with *Bradshawiæ* (*C. Nœzliana* × *O. crispum*), and the influence of the peculiar colour of *Pescatorei* will be apparent.

The mystery surrounding the lineage of so many of the blotched "crispums," which were greedily and justifiably used in the beginning by hybridists, prepares one for many seeming inconsistencies in the offspring from these sources; and yet, perhaps, the best illustration of the powerful colour of *Pescatorei* is to be found in many varieties of *O. ardentissimum* and *O. eximium*, the primary and secondary hybrids between that species and *Pescatorei*.

Odontioda, a happy and euphonious word, compounded from *Odontoglossum* and *Cochlioda*, suggests, as it implies, a hybrid containing a generous part each of *Cochlioda* and *Odontoglossum*; but the few secondary *Cochlioda* hybrids it yet has been permitted me to flower have sorely tried my conscience with the name, and I can imagine in the near future good, bad, and indifferent hybrids labelled *Odontioda* with no trace at all of *Cochlioda* on the surface, and that, after all, is where it should be. I am not writing this by way of discouragement, for, as I have already said, there are to be compensations, and the Orchid hybridist who is not an optimist has missed his true vocation. The best secondary *Cochlioda Nœzliana* hybrid that it has been my fortune to see is *Royal Gem*, the result of crossing *Odontioda Vuylstekeæ* with *Odontoglossum ardentissimum*, and the worst, *Latona*, the result of crossing *Odontioda Bradshawiæ* with *Odontoglossum crispum-Harryanum*; but I know that

there have been good varieties from the latter cross, and I may presume that there have been bad in the former, and it is more than likely that neither the best nor the worst has come under my notice. Many of the *Odontiodas* that have been raised from the *Cochlioda* species other than *Nœzliana*, in comparison are wholly indifferent, and although they each in turn may have proved a mild sensation when *Odontiodas* were novelties they are likely with time to further recede in consequence. Many of them are elegant and, grown into strong plants, make graceful and useful sprays, but they fall short of those essentials which distinguish the choice Orchid. An Orchid flower when it touched the diminutive cannot be a choice Orchid, and although it may have many admirable qualities, and may even be a stepping-stone to something better, it will rarely get beyond the doubtful compliment of having botanical interest.

That we shall yet have *Odontiodas* as large as *Odontoglossum crispum* and with the colour of *Cochlioda Nœzliana* is not open to much doubt, and it is also quite conceivable that the above species of *Cochlioda* with the assistance of *O. crispum*, *O. Harryanum* and *O. Pescatorei* will be sufficient to produce it. It is unlikely that it will be produced in numbers, but more as an occasional and exceptional form, such as is hoped for, and sometimes got, when the coveted feature is some crossing removed.

At Chessington, Christchurch Road, Streatham, as these notes are being written, there is an instructive object lesson on the colour tendencies of *Cochlioda Nœzliana* and *C. vulcanica*. There are in flower *Odontioda Charlesworthii* (*C. Nœzliana* × *O. Harryanum*), *O. beechensis* (*C. N. × O. Rolfeæ*), and *O. Sanderæ* (*C. N. × O. percultum*); also *Odontioda Thwaitesii* (*C. vulcanica* × *O. Harryanum*), *O. Isis* (*C. vulcanica* × *O. Rolfeæ*) and *O. Stella* (*C. vulcanica* × *O. percultum*). There are thus three *C. Nœzliana* hybrids and three *C. vulcanica* hybrids composed respectively of the same constituent *Odontoglossum* species. Both the *Odontioda Charlesworthii* and the *O. Thwaitesii* are

very well known. The former is practically a self coloured solid red flower, while the latter is a solid magenta coloured flower, and, like the pollen parent, strongly scented. *O. Thwaitesii* is, and probably will remain, the most individual and readily distinguishable of the *Odontioda* race. Flowered on plants of equal strength, the former is appreciably larger while the latter is more floriferous.

In *Odontioda beechensis* the colour of the *O. Charlesworthii* is fully maintained, but is clearer and brighter, while the magenta of the *O. Thwaitesii* is very much reduced in *O. Isis*. In these two hybrids it will be noted that the *Odontoglossum* parent is half *Harryanum* and half *Pescatorei*.

Odontioda Sanderæ further accentuates the solid, rich, bright colour of *O. Charlesworthii* and *O. beechensis*, while *Odontioda Stella* becomes still paler and more washed out than *O. Isis*. In these two hybrids it will be noticed that the *Harryanum* in the *Odontoglossum* parent is reduced to one-quarter, while one-half is still *Pescatorei*, a quarter of *crispum* being introduced.

There is here in evidence in the *Cochlioda Nœzliana* hybrids a brightening of the colour without loss of density corresponding to the lessening of the *O. Harryanum* and the increasing of the *O. Pescatorei* influence in the *Odontoglossum* parent, while exactly the reverse takes place in the *C. vulcanica* hybrids, namely, a steady declension of colour corresponding to the increase of the *Pescatorei* and the reduction of the *Harryanum* influence.

The few *Odontioda Vuylstekeæ* (*C. Nœzliana* × *O. Pescatorei*) that we have flowered have been without exception exceedingly rich, although the *Pescatorei* parent was, of necessity, a plain one; while the *Odontioda Bradshawæ* (*C. Nœzliana* × *O. crispum*) have been incomparably paler, although in this case a blotched *crispum* was used. This fact goes to further emphasise the enriching trend of *O. Pescatorei* when used with *C. Nœzliana*, and has a practical value to those who, like the writer, are struggling with conflicting and difficult-to-diagnose results.

(*To be continued.*)

ORCHIDS FOR AMATEURS.

SEPTEMBER marks the commencement of work in the *Odontoglossum* houses. During the last few weeks many of the plants have produced new growths, some of which are now sufficiently advanced to allow the necessary re-potting to be carried out at the most opportune time. As soon as root action begins, usually when the new growth is two or three inches in height, all necessary attention to the compost must be done without delay. If this operation is deferred until the roots have grown to some length, and often over the edge of the pot, the amateur will not be best pleased when he finds it impossible to replace them without breaking off the greater portion. Hence the necessity of attending to all details of potting directly the opportune moment arrives.

Those who take an interest in the natural conditions under which plants grow must have noticed the important fact that the old roots are rarely disturbed, the plant remains fixed to its support, sometimes the branch of a tree, at other times a hard rock, and as each new bulb is formed so the plant, by its lengthening rhizome, gradually, but surely, reaches fresh supplies of food. Under the artificial conditions of cultivation with which we are obliged to place our plants there cannot be quite the same facilities for reproducing Nature, and so we are, therefore, somewhat restricted in the practical part of carrying out our ideas. Whatever this apparent disadvantage may be, it is more than balanced by the protection we are able to give our plants, for it must always be remembered that draughts, oftentimes severe, violent storms, and various animals, frequently do considerable damage to the plants when growing unprotected, as they often are, from these dangers.

Now we must turn our thoughts to the practical part. No one expects, nor will they ever find, all the *Odontoglossums* in any collection to be in exactly the same condition regarding the new growth. On this account the work of re-potting should extend over

a comparatively long period. The so-called business-like method of going through a house and potting every plant, no matter in what condition of growth, or in what state the compost is in, cannot, in these advanced days of culture, be too severely condemned. Every plant should be carefully examined, and those requiring immediate attention selected for the day's work. Many plants will not produce their new growths until several weeks have elapsed, and, consequently, need not be attended to until a later period, for, with the exception of December and January, it matters little at what time of the year re-potting actually takes place, the chief factor to ensure success in the operation being the right condition of the new growth.

The old method of potting consisted of carefully packing the compost so that its centre remained several inches above the level of the pot. The plant was thus placed on the top of the driest portion of the compost, and often died for want of water. This treatment might suit a very few of the *Brassavola* type of plants, but it is totally unsuitable for *Odontoglossums*. All the best results have been obtained when the surface of the compost is kept just beneath the top of the pot. By this means there is every chance of the roots obtaining sufficient moisture when water is applied.

Care should always be taken that the plant is not buried too deeply in the compost. The new growth is very likely to damp off when the compost is brought round it at too high a point. The plant should be in such a position that the part from which the new roots push forth is just covered by the surface of the compost. In the actual potting, it will be found best to first commence by working in the compost round the plant, then pressing it fairly firmly and making all secure by inserting the remainder along the edge of the pot. This will be found a better way than pushing in the last portion of the compost near the plant, for when so done there is much likelihood of the roots being broken.

It is by no means easy to acquire the art of potting Orchids by merely reading printed directions; there are so many competent

men in various parts of the country that it is a comparatively easy matter to obtain tuition in a practical way, and amateurs will find it much to their advantage to obtain all the practical advice possible. If a few visits to one of the large trade growers can be arranged so much the better, for they are always willing to assist anyone and render the best advice to beginners.

With regard to the future treatment of newly-potted plants. One of the most frequent errors among amateurs is the belief that plants after disturbance of their roots require an extra amount of water to prevent the bulbs from shrivelling and the leaves from flagging. There is no need whatever for this additional moisture, which, more often than not, is the cause of the compost becoming sour and quite unfit for the new roots to penetrate. All newly-potted plants should be kept for a few weeks in a shady and moist situation, and the foliage be lightly sprayed once or twice a day with rain-water. Very little ill effects will then be noticed, and the leaves will not be lost, as often occurs when plants are placed in too dry and draughty an atmosphere. The state of the compost should be moist, but not sodden in any way. The sphagnum moss will always serve as a good guide in this matter, for when dry it assumes a white appearance, and when wet the colour is green. A suitable condition of the compost will be obtained by giving just sufficient water to prevent the moss from losing its green nature. When the plants are rooting freely in the compost then slightly more water may be given, but care must always be taken that an excess does not cause sourness, and consequent ill-health of the plant.

Although every inducement should be given the plants to make as much growth as possible before the dullest of the winter months, one cannot too strongly advise amateurs to refrain from attempting anything of a forcing nature by excess of heat or other means in connection with the cultivation of *Odontoglossums*. The finest flower spikes are always produced from plants that have made a healthy and steady growth under cool

natural conditions. It should be the aim of every grower to first obtain strong plants. Nothing succeeds like success, and the continual increase in the size and vigour of the plants is the greatest of all encouragements that amateurs can ever wish to have.

Insect pests will find their way to Orchids quite as easily as they do to other plants. The chief trouble with *Odontoglossums* is thrip. These small insects, almost invisible to the naked eye, multiply at a rapid rate, and do considerable damage in a very short space of time. Their favourite habitation is in the centre of the new growth and on the flower spikes, where they cause a burnt and rusty appearance. Fumigation with nicotine is generally used, and proves effectual when the house is fairly new and can be made air-tight, but in older houses, which are generally leaky, this method will not be found so good, and resource must then be had to washing the plants with liquid insecticide, usually a longer process, but generally more efficient. Many expert cultivators spray their plants every other week with insecticide, and also make a practice of washing the flower spikes, for thrips are very fond of getting in between the flower buds and under the bracts, or scale leaves, on the stem. It is advisable to mention that care should be taken to prevent the wash from entering the compost. The spraying and washing is best carried out when the weather is not too hot to dry it up before the insects are killed. The foliage and flower spikes should also be in a dry state before commencing the operation, otherwise the insecticide, falling on a wet surface, may become so diluted as to be useless.

Towards the end of September some of the shading should be removed; that is, of course, supposing it to be of the permanent kind, which includes whitewash and the green mixtures sold specially for the purpose. All changes from shade to a bright light should be carried out by slow stages; the plants then have ample time to accustom themselves to the new conditions. Any sudden change will inevitably bring about disaster in the way of burnt leaves and bulbs.

GHENT EXHIBITION.

THE great Horticultural Exhibition, organised by the Cercle Van Houtte, took place August 9th to 17th, in the Palais de l'Horticulture, Ghent. Taken on the whole the Exhibition was a wonderful collection of plants and flowers, such as are rarely seen at shows held during an earlier part of the year, and for that reason the exhibits were of considerable interest. Nearly 600 classes were provided in the schedule, and an International Jury took several hours in awarding the prizes.

Count Joseph de Hemptinne, President of the Society, and several energetic workers, have been occupied for some time past in the preliminary work connected with the formation of a large exhibition, and they have visited many other principal shows for the purpose of obtaining further information. The result was that one of the finest and most beautiful exhibitions took place. In many respects it was an improvement on all past shows, one important point being the effective manner in which the masses of colour were arranged, and the manner of grouping large foliage plants, the whole forming a magnificent piece of harmonious garden architecture. We have nothing but praise for the able manner in which the whole proceedings were carried out.

The Orchids occupied a large part of the show, and never before have so many of these plants been seen in flower during the month of August. It only proves how, with a little forethought and method, Orchids can now be had in bloom during every week of the year. The staging set apart for these plants occupied the whole end of the building, the various tables being placed on an elevated and inclined floor, so that when viewed from the distance a wonderful effect was obtained.

Count Joseph de Hemptinne, St. Denis, Westrem, Ghent, was awarded an *Objet d'Art*, value 100 francs, for a fine display of *Odontoglossum* hybrids, those of *Harryanum* being very numerous. Several excellent forms of *Cattleya Warscewiczii*, one being

particularly dark; a specimen plant of *Masdevallia bella*; *Cypripedium Rothschildianum*; and *Lælio-Cattleya Black Prince*, a wonderful variety with the large lip solid crimson in colour, were amongst the choice specimens. Count Hemptinne also obtained the second prize, a Silver Medal, for the finest *Cattleya*, by showing *C. Van Houtte*, a new hybrid between *C. Warscewiczii* and *C. Lord Rothschild*.

Mons. Firmin Lambeau obtained an *Objet d'Art*, value 200 francs, for a very fine exhibit of *Cattleyas*, which included *C. Warscewiczii* var. *Frau Melanie Beyrodt*, *C. Hardyana* "Triomphe," *C. Dowiana*, and several excellent varieties of other species and hybrids. Well-flowered plants of *Dendrobium Dearei* and *Cypripedium Rolfei* were also shown. A Silver-gilt Medal was awarded to *Brasso-Cattleya Dietrichiana albescens*, a large creamy-white flower, with the bright yellow labellum having a delicate rose tint on the border. Mons. Lambeau also received a Silver-gilt Medal for *Cattleya Comet rutilant*, being the finest *Cattleya* in the show. The flower has very stiff, erect petals, the colour deep glowing purple, the lip with a darker band of colour round the margin, the throat orange-brown.

Mons. Ch. Dietrich, Auderghem, received a Gold Medal for the most beautiful display of *Miltonia vexillaria*, the specimens being a mass of flower, and making a very attractive point in the Exhibition. Mons. Dietrich also obtained a Silver-gilt Medal for *Miltonia vexillaria* var. *G. D. Owen*, being the finest variety shown.

Dr. Ballion, Ghent, was awarded an *Objet d'Art*, value 100 francs, for the best collection of fifty Orchids. These included *Cattleya Président Henri de Wilde*, with a dark labellum, *C. Whitei*, *C. Thurgoodiana*, *C. Warscewiczii* var. *M. Gottigny*, *Cypripedium Alma Gevaert*, a fine albino, *Brasso-Cattleya Edmondii*, a beautiful form, *Cypripedium selligerum*, and many *Odontiodas*. Dr. Ballion also obtained a similar award for the best twenty *Cattleyas*, and a Silver-gilt Medal for the best *Cypripedium*.

Sir Jeremiah Colman, Bart., Gatton Park,

England, was awarded a Gold Medal for a group of choice Orchids, including *Bulbophyllum grandiflorum*, *B. virescens*, *Peristeria elata*, the curious *Catasetum Reichenbachianum*, *Cypripedium superbiens* with eleven flowers, *C. Maudiae magnificum*, *Cynoches chlorochilon*, and many excellent *Odontiodas*.

Messrs. Th. Pauwels and Co., Meirelbeke, secured an *Objet d'Art*, value 200 francs, for a very extensive and elegant exhibit. In it were *Bulbophyllum Lobbii* with nineteen flowers, *Cattleya Warscewiczii* with over thirty blooms, *C. Lord Rothschild alba*, a fine form with creamy-white flowers, *Dendrobium Phalænopsis* with twenty-one flowers on a single spike, *Grammangis Ellisii*, one plant of which carried two strong spikes of flower. *Cypripedium Rothschildianum* with eight blooms, *Vanda Parishii*, several good *Phalænopses*, and numerous *Miltonias*. Messrs. Pauwels also received an *Objet d'Art*, value 100 francs, for the best collection of twenty *Cattleyas*, and a Gold Medal for a lot of *Dendrobiums*, which included *acuminatum*, *Bronchartii*, *Sanderæ*, and *Phalænopsis*.

Mons. Vuylsteke received an *Objet d'Art*, value 200 francs, for an excellent exhibit of *Odontiodas*, many of which carried branching spikes of numerous flowers. The *Odontoglossums* were also first-class, and included *Roi Albert*, a grand flower of the amabile section, and *Exornatum nivale*, a very large flower, creamy-white, the lip pandurate. *Miltonia vexillaria* was also well shown. This exhibit was quite equal to others staged by Mons. Vuylsteke on Spring-show occasions, when *Odontoglossums* and *Odontiodas* are usually in their finest form.

Mons. Jules Hye de Crom was awarded an *Objet d'Art*, value 200 francs, for an extensive exhibit, comprising two hundred excellent plants of *Miltonia vexillaria* and *Hyeana*, the variety *Empress Augusta* being noteworthy. A darkly-blotched hybrid between *Leopoldii* and *G. D. Owen* was included. Other plants were *Cattleya Dowiana* var. *Madame J. Hye de Crom*, similar to the well-known *Rosita*; *Cattleya Dupreana Hyeana*; *C. Suzanne Hye de Crom*; the interesting hybrid between *C. intermedia Aquinii* and *Aclandiae*;



Cattleya Dirce magnifica. (R.H.S. Journal.)

F.C.C., R.H.S., May 22nd, 1912, when exhibited by Lieut.-Col. Sir George Holford, K.C.V.O.



Lælio-Cattleya St. Gothard, McBean's variety.
F.C.C., R.H.S., October 24th, 1911.

Masdevallia Harryana alba, with creamy-white flowers; *Cypripedium Massaianum* with fifteen flowers; *C. Gaston Bulteel*; and a good form of *Lycaste Skinneri* alba.

Mons. Maurice Verdonck secured an *Objet d'Art*, value 100 francs, for an exhibit of fifty Orchids, including *Dendrobium regium*, *Thunia Marshalliana*, *Acineta chrysantha*, *Cœlogyne Massangeana*, and *Cypripedium Lawrenceanum* with seven flowers. A Gold Medal was secured for a fine exhibit of *Phalænopsis amabilis*, nearly fifty spikes being shown.

Mons. René Behiels, St. Nicolas, received a Gold Medal for a group containing a well-flowered *Cattleya Gaskelliana*, *Dendrobium Sanderæ*, *Cypripedium ænanthum* with ten flowers, and many bright yellow *Oncidiums*.

Messrs. Jean Van de Putte were awarded a Silver-gilt Medal for the best lot of Guatemala Orchids. These included *Epidendrum nemorale*, *E. fragrans*, *Odontoglossum grande*, *Lycaste Skinneri*, and some interesting varieties of *Odontoglossum Uro-Skinnerii*, one of which has light brown sepals and petals with a light rose lip, but no spots on any portion. The albino form was also shown. Messrs. Van de Putte also showed twenty-five strong plants of *Oncidium Wentworthianum*, with tall branching flower spikes, for which they received a Silver-gilt Medal; and a similar award for a collection of Orchids suitable for cut-flower purposes.

Messrs. Charlesworth and Co. received an *Objet d'Art*, value 100 francs, for a choice selection of Orchids, including *Vanda Sanderæ*, *V. Marguerite Maron*, *Trichosma suavis*, *Cypripedium Charlesworthii* var. *Mons. le Doux*, several excellent *Odontoglossum* hybrids and *Aerides* species.

Mons. Chas. Maron, Brunoy, was awarded a Silver-gilt Medal for a good group in which were nice examples of *Vanda cœrulea*, *Vanda Marguerite Maron*, *Cattleya Kienastiana* (*Lueddemanniana* × *aurea*), *Lælio-Cattleya Henry Greenwood*, a very rich form of *Cattleya Hardyana*, and several *Brassavola* hybrids.

Messrs. Vacherot and Lecoufle, Boissy St.

Leger, received a Gold Medal for their group of Carnations and Orchids, the latter including *Odontioda Thwaitesii*, *Phalænopsis amabilis*, *Odontoglossum citrosmum roseum* with good spikes, and *Oncidium pulvinatum* with many flowered spikes of yellow and brown blooms.

The Société Horticole Gantoise exhibited a very fine specimen of *Vanilla aromatica variegata* in their group, which was awarded the prize offered by H.M. the King of the Belgians. In the group staged by the Cercle Van Houtte were various Orchids that had been introduced by M. Van Houtte.

ROYAL HORTICULTURAL SOCIETY.

July 29th, 1913.

MEMBERS of the Orchid Committee present :

J. Gurney Fowler, Esq. (in the chair), Mr. James O'Brien (hon. sec.), Sir Harry J. Veitch, Messrs. R. B. White, W. Bolton, W. H. White, S. W. Flory, W. P. Bound, J. E. Shill, W. H. Hatcher, J. Charlesworth, W. Cobb, C. H. Curtis, T. Armstrong, A. McBean, F. Sander, Gurney Wilson, C. J. Lucas, R. G. Thwaites, A. Dye, and R. A. Rolfe.

Messrs. Sander and Sons, St. Albans, were awarded a Silver Banksian Medal for an interesting group of rare species, including *Oncidium Sanderæ*, *Dendrobium Griffithianum*, *Cœlogyne Meyeriana*, and a curious *Bulbophyllum* from West Africa.

Messrs. Charlesworth and Co., Haywards Heath, secured a Silver Banksian Medal for a group containing the pretty *Paphinia cristata*, the rare *Houlletia Wallisii*, *Miltonia Rœzlii* alba with 13 flower spikes, and the elegant *Maxillaria meleagris*.

Messrs. J. Veitch and Sons, Chelsea, were awarded a Bronze Banksian Medal for a pretty group of *Disa grandiflora* raised from seed in this country. The plants were less than three years old.

Messrs. Hassall and Co., Southgate, obtained a Bronze Banksian Medal for some excellent hybrids, which included *Cattleya Thurgoodiana*, and a new cross between *C. Bowringiana* and *C. Skinneri*. The yellow

Acineta Barkeri and *Cattleya Dowiana* were also shown.

R. G. Thwaites, Esq., Streatham (gr. Mr. J. M. Black), was awarded a Bronze Banksian Medal for an interesting exhibit, the best plants being *Odontioda Thwaitesii*, *Cattleya Caduceus* (*Gaskelliana* × *granulosa*), and *Cattleya Warscewiczii* var. *Frau Melanie Beyrodt*.

Sir Jeremiah Colman, Bart., Gatton Park, exhibited *Miltonia vexillaria* "Queen Alexandra," a finely developed flower; *M. vexillaria radiata splendens*; and *Aerides odoratum album*, which the Committee decided was a white form of *Aerides virens*.

Pantia Ralli, Esq., Ashted Park, Surrey, (gr. Mr. Farnes), exhibited *Odontioda keighleyensis* Ashted Park variety, a bright scarlet form with creamy-white markings on the petals; *Odontoglossum eximium* "G. Hunt," an elegant variety; and *Miltonia Charlesworthii*. See Awards.

Sir Trevor Lawrence, Bart., Burford, showed the rare *Odontoglossum Galleotianum*, a natural hybrid between *O. nebulosum* and *O. Cervantesii*, and *Maxillaria fractiflexa*, with curiously twisted segments.

de Barri Crawshay, Esq., Rosefield, Seven-oaks, exhibited *Odontioda Desdemona* (*C. Noëzliana* × *O. Othello*), a fine flower with the lip particularly well developed.

Messrs. Manda, St. Albans, showed *Cattleya Gaskelliana*, in three specimens, and a good dark form of *C. Warscewiczii*.

AWARDS OF MERIT.

Miltonia Charlesworthii, variety Mrs. Ralli (*M. vexillaria* G. D. Owen × *M. Hyeana*), from Pantia Ralli, Esq., Ashted Park, Surrey.—A very beautiful flower with soft rose-pink tint, the lip having an intensely dark crimson-purple blotch of triangular shape, the sepals having a small blotch on their basal portion.

Odontoglossum Queen Alexandra, variety *Theodora* (*Harryanum* × *triumphans*), from de Barri Crawshay, Esq., Rosefield, Seven-oaks.—A very handsome hybrid in which the yellow ground colour is blotched with chestnut-brown, the immense lip being white with rose markings.

CULTURAL COMMENDATION

To Mr. W. H. White, Orchid grower to Sir Trevor Lawrence, Bart., K.C.V.O., for a basket of about twenty plants of *Habenaria rhodochila*, all propagated from two or three original plants.

To Messrs. Charlesworth and Co., Haywards Heath, for a well-grown specimen of *anagræcum Eichlerianum*, with 19 large flowers evenly distributed over the whole length of the plant.

August 12th, 1913.

MEMBERS of the Orchid Committee present: J. Gurney Fowler, Esq. (in th chair), Mr. J. O'Brien (hon. sec.), Sir Harry J. Veitch, Messrs. Gurney Wilson, F. J. Hanbury, W. H. Hatcher, G. Hunter, A. Dye, J. Charlesworth, A. McBean, W. H. White, S. W. Flory, W. Bolton, de Barri Crawshay, and R. A. Rolfe.

E. H. Davidson, Esq., Orchid Dene, Twyford, received a Silver Flora Medal for a choice selection, including the beautiful *Odontoglossum Woodroffeæ*; *Cattleya Fabia*, in several excellent varieties; *Brasso-Cattleya Joan*; and *Cattleya Hardyana*.

Messrs. Charlesworth and Co., Haywards Heath, received a Silver Banksian Medal for a group of elegant plants. Mention must be made of *Stanhopea convoluta*, the distinct *Cattleya Fauna*, and the interesting *Cynoches chlorochilon*.

Messrs. J. and A. McBean, Cooksbridge, were awarded a Silver Banksian Medal for a good exhibit, in which were several fine *Odontiodas*, the new *Lælio-Cattleya Urania*, *Vanda cœrulea*, and the interesting *Odontocidium Edwardatum* (*Od. Edwardii* × *On. serratum*).

H. T. Pitt, Esq., Stamford Hill, was awarded a Silver Banksian Medal for a pretty group, the best plants being *Anagræcum Scottianum*, *Miltonia Bleuana*, *Cypripedium Chas. Richman*, and *Cattleyas aurea* and *Source d'or*.

R. G. Thwaites, Esq., Streatham Hill, exhibited various varieties of *Odontiodas*, including *Sanderæ*, *Thwaitesii* and *Latona*; also *Cattleya Pittiana*, a distinct form.

Messrs. Armstrong and Brown, Tunbridge Wells, showed *Dendrobium Hookerianum*, a beautiful golden-yellow flowered species with a well-developed fringed lip. It had already received a First-class Certificate in 1870, and the Committee now decided that a painting should be made of the flower.

Messrs. Stuart Low and Co., Enfield, staged *Cattleya Dowiana*, a good plant of *Cœlogyne pandurata*, *Lælia crispa*, with an abundance of flower, and a remarkably fine variety of *Cattleya Thurgoodiana*. A very well-coloured variety of *Miltonia Phalænopsis* was also shown.

Messrs. Sander and Sons, St. Albans, exhibited *Lælio-Cattleya Phoenix* var. King George (L.-C. Henry Greenwood × *C. aurea*), a good flower with cream-white sepals and petals tinged with purple, the lip dark mauve-purple.

Mr. E. V. Low, Haywards Heath, exhibited a good variety of *Cattleya Atalanta*, with a spike of ten flowers; and *Lælio-Cattleya Ophir*, E. V. Low's variety, a large creamy-white flower, petals a little whiter, lip rose-purple.

de Barri Crawshay, Esq., Sevenoaks, showed *Odontioda Leeana*, a large and distinct flower with oval petals, of red colour, with rose-lilac freckling on the lip; also *Odontoglossum Queen Alexandra*, a bold and dark variety, superior in form and with a larger lip than the one previously certificated.

E. R. Ashton, Esq., showed *Odontioda St. Fuscien Broadlands* variety, of scarlet-red colour; and *Lælio-Cattleya Jessica* (L.-C. Clive × *C. aurea*).

AWARDS OF MERIT.

Lælio-Cattleya Wellesleyæ var. *Flambeau* (*C. Warszewiczii* × L.-C. *Martinetii*), from E. H. Davidson, Esq., Twyford. A very fine flower of large size, showing much of the former parent. Sepals and petals bright purple-rose. Lip broad, crimped, deep purple-crimson with radiating lines of gold.

Lælio-Cattleya Urania (L.-C. *Ingramii* × *C. Mantinii*), from Messrs. J. and A. McBean,

Cooksbridge. An exceedingly well-coloured flower, showing an improvement on *C. Mantinii*, being much larger and of richer colour.

CULTURAL COMMENDATION

To Messrs. Charlesworth and Co., Haywards Heath, for a grand specimen of *Cryptophoranthus Dayanus*, with an enormous number of flowers.

August 26th, 1913.

MEMBERS of the Orchid Committee present: J. Gurney Fowler, Esq. (in the chair), Mr. J. O'Brien (hon. sec.), Sir Harry J. Veitch, Messrs. Gurney Wilson, J. Charlesworth, W. H. White, W. Bolton, W. Cobb, T. Armstrong, F. J. Hanbury, R. Brooman-White, R. A. Rolfe, J. E. Shill, A. McBean, A. Dye, and Stuart Low.

Messrs. Sander and Sons, St. Albans, were awarded a Silver Flora Medal for a good group containing *Vanda Sanderiana*, with a spike of 9 flowers; *Stanhopea Peruviana*; specimen plants of *Anguloa Cliftonii*; and the interesting *Catasetum tabulare*, the labellum of which has a raised table-like white centre.

Messrs. Charlesworth and Co., Haywards Heath, were awarded a Silver Banksian Medal for a nice exhibit in which were good forms of *Vanda coerulea*; *Brasso-Cattleya Moneta*, of excellent shape; the pretty *Paphinia cristata*, and good *Lælio-Cattleyas*.

Messrs. Armstrong and Brown, Tunbridge Wells, received a Silver Flora Medal for some specimen *Lælio-Cattleyas*, of which mention should be made of *Baroness Schröder* and *Geo. Woodhams*. *Odontioda Seymouræ* (*Charlesworthii* × *Bradshawiæ*) was also shown.

Messrs. Veitch and Sons, Chelsea, were awarded a Silver Flora Medal for an interesting exhibit of hybrids, the best being *Brasso-Cattleya Thetis* and *Lælio-Cattleya Olenus* var. *Ettrick*.

H. T. Pitt, Esq., Stamford Hill, secured

a Silver Banksian Medal for a pretty group, in which were good plants of *Miltonia Bleuana*, *Lælia monophylla*, *Bulbophyllum barbigerum* and *Cypripedium Chas. Richman*. *Cattleya Gertrude Pitt* (*Mossiaë* × *Pittiaë*) was in good form.

Messrs. Hassall and Co., Southgate, secured a Silver Banksian Medal for a collection of pleasing plants. The *Cattleyas* included good *aureas*, *Thurgoodiana*, *Iris*, and a dark form of *Gaskelliana*. *Odontoglossum Uro-Skinneri* was also represented by a good variety.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate, exhibited *Brassia brachiata magnifica*, a very fine form with two spikes having a total of 17 flowers. Also a specimen *Lælia monophylla* and *Pleurothallis velaticaulis*, a scarce species.

Pantia Ralli, Esq., Ashted Park, Surrey, exhibited a good variety of *Odontioda Euterpe*, the flowers of scarlet-red with a broad labellum.

H. S. Goodson, Esq., Fairlawn, Putney, showed *Cattleya Hardyana Goodsoniaë*, with creamy-white sepals and petals, and crimson-purple lip.

AWARDS.

FIRST-CLASS CERTIFICATES.

Brassocattlælia The Baroness (B.-C. Mrs. J. Leemann × L.-C. *Ophir*), from Baron Bruno Schröder, Englefield Green, Surrey.—A beautiful result. Flowers deep canary-yellow, the sepals and petals of thick substance. The broad labellum crisped and slightly fringed at the margin, with a creamy-white border, the centre flushed with rose, the throat bright yellow. One of the finest of the yellow flowering hybrids.

Odontonia brugensis var. *Eileen* (*Od. Edwardii* × *M. vexillaria*), from J. Gurney Fowler, Esq.—A very interesting hybrid, in which the flowers are about two inches across, of a deep rose-purple colour. The labellum pandurate, and with a crimson blotch of colour beneath the crest. The

spike showed some of the bending habit of the *vexillaria* parent.

AWARDS OF MERIT.

Cattleya Hardyana var. Mrs. Waters Butler, from W. Waters Butler, Esq., Edgbaston, Birmingham.—The plant carried a spike of four flowers, the large central area of the labellum being bright yellow. A very effective and unusual result.

Lælio-Cattleya Marquis de Wavrin, from Messrs. Armstrong and Brown, Tunbridge Wells.—An excellent flower, of dark purple colour, the labellum being rich crimson-purple.

Lælio-Cattleya Olenus var. *Ettrick* (*C. aurea* × L.-C. *bletchleyensis*), from Messrs. Veitch and Sons.—A large flower of rich purple-mauve colour, the labellum showing some sign of *C. gigas*, but otherwise of dark crimson-purple.

CULTURAL COMMENDATION

To Mr. J. Collier, Orchid grower to Sir Jeremiah Colman, Bart., for a specimen of *Ornithidium sophronitis*, with numerous scarlet flowers.

MANCHESTER ORCHID SOCIETY.

July 3rd, 1913.

MEMBERS of the Committee present:—Rev. J. Crombleholme (in the chair), Messrs. J. Bamber, Dr. Hartley, A. J. Keeling, D. McLeod, C. Parker, W. Shackleton, P. Smith, H. Thorp, Z. A. Ward, G. Weatherby, A. Warburton, and H. Arthur (Secretary).

Silver-gilt Medals were awarded to R. Ashworth, Esq., Newchurch, and A. Warburton, Esq., Haslingden. A Cultural Commendation and Bronze Medal were awarded to Mr. Rogers, gr. to O. O. Wrigley, Esq., for very fine plants of *Phalænopsis*, etc. Mr. J. Birchenall and Messrs. A. J. Keeling and Sons also exhibited interesting plants.

INDEX.

- A rare event, 249.
Acanthophippium sinense, 227.
Adioda St. Fuscien, 112.
Aerides Sanderiana, 225.
 Air plants, cultivation of, 27.
 Albinism, 52, 74, 125.
 Among the Orchids, 5.
 An Orchid, 75.
Angræcum citratum, 278; *falcatum*, 278; *infundibulare*, 252; *Kotschyi*, 251, 278.
Anæctochilus, 249.
Arachnanthe Cathcartii, 278; *Lowii*, 278.
Bifurcated Dendrobium, 49.
 Botanical Certificate, 123.
Brasso-Cattleya André Maron, 77; *fulgens*, 150; *Mariliana*, 140; *Menda*, 139; *Mendelosa*, 213; *mirabilis*, 213; *Pittiana*, 30.
Brassocattlælia Astarte, 30; *amabilis*, 275; *Excelsior*, 213; *Figaro*, 150; *Gerald*, 210; *King Emperor*, 191; *Nola*, 112.
 British Orchids, 81.
Bulbophyllum Lobbii, 278.
Calanthe, culture of, 108; *rosea*, 278; *vestita*, 278; *violacea*, 154.
 Calendar of Operations for October, 15; November, 41; December, 65.
Catasetum Christyanum, 25; *Darwinianum*, 197.
Cattleya bicolor, 20; *Bowringiana*, 154, 278; *citrina*, 228, 248, 271; *Comet*, 50; *Dowiana*, 278; *Gaskelliana*, 14; *Harrisiana*, 45; *Ianthé*, 140; *Isis*, 30; *Lawrenceana*, hybrids of, 12; *Lord Rothschild*, 139; *Mad. Charlier*, 55; *Madonna*, 114; *Mendelissima*, 183; *Mülleri*, 56; *Oberon*, 56; *Percimax*, 112; *Rhoda*, 21; *Schröderæ*, 82; *Tityus*, 95; *Van Houtte*, 275.
Chytroglossa Marileoniae, 274.
 Certificate of Appreciation, 145.
 Chelsea Show, 216.
Cirrhopetalum miniatum, 153; *robustum*, 278.
Cleisostoma acuminata, 227.
Coelia macrostachya, 247.
Coelogyne albanense, 254; *barbata*, 74; *Dayana*, 279; *intermedia*, 119; *Sanderiana*, 273; *Veitchii*, 279.
 Colour, 125; distribution of, 170.
 Commencement of cool-house treatment, 256.
Cynoches Cooperi, 117, 227; *pentadactylon*, 279.
Cymbidium grandiflorum, 279; *Huttoni*, 279; *Humboldtii*, 172; hybrids, 128; *Wilsnii*, 279.
Cypripedium acaule, 246; *Amazon*, 117; *Alcinida*, 117; *barbatum*, 279; *callosum Sanderæ*, 4; *Curtisii*, 279; *caudatum*, 183, 279; *Demeter*, 95; *Eurybiades*, 94; *Idina*, 95; *insigne Sanderæ*, 164; *Iona*, 112; *javanicum*, 279; *Lawrenceanum*, 279; *Latona*, 71; *Muriel*, 70; *niveum*, 279; *Pallasathenæ*, 47; *philippinense*, 279; *Roundhead*, 171; *Sir William Chance*, 95; *superbiens*, 279; *Tracery*, 55; *tonsum*, 279; *Viking*, 77; *villosum*, 279.
Dendrobium acrobaticum, 280; *albosan-guineum*, 280; *atroviolaceum*, 280; *Brymerianum*, 102; *Creole*, 140; *cre-taceum*, 280; *Harrisonii*, 213; *Huttoni*, 280; *Jamesianum*, 280; *Johannis*, 280; *leucolophotum*, 280; *macrophyllum*, 280; *Schützei*, 22; *Sibyl*, 146; *superbiens*, 280; *superbum*, 280; *taurinum*, 280; *thyrsi-florum*, 127; *tortile*, 280; *transparens*, 280; *Wardianum*, 195.
Dendrobiums, 107; of New Guinea, 29.
Dendrocolla Pricei, 227.
Dia-Lælia langleyensis, 112.
Disa grandiflora, 246.
 Disbudding, 78.
 Enormous specimen, 276.
Epidendrums, 43; *congestum*, 154.
 Epiphytes in Uganda, 251.
 Epiphytic Orchids, 88.
Epi-Lælia Australia, 276.
Eria trilamellata, 226.
 Essen Orchid Show, 79.
Eulophia acuminata, 154; *Allisoni*, 154; *Bakeri*, 154; *latipetala*, 154; *Macowani*, 154; *Rehmanni*, 154.
 Fertilisation, 79, 147, 198.
 Genetics, 57, 83, 103.
 Ghent Show, 186, 214, 285.
Glossula calcarata, 227.
 Groups, 214.
 Hybridisation, some ideas on, 281.
 Imported seed pods, 194.
 Irregular peloria, 222.
 January, 76.
Lælia crispa, 3; *grandiflora*, 250; *Gouldiana*, 98, 99; *Jongheana* and its hybrids, 224; *Susanna*, 139.
Lælio-Cattleya aurensis, 114; *Barbara*, 151; *Baskettæ*, 227; *Charmian*, 77; *Cicely*, 114; *Duchess of Connaught*, 213; *Edith Blyth*, 228; *Elsie Lemare*, 275; *ever-shotensis*, 77; *Favorinus*, 254; *Fred. Gott*, 6; *Fleureauæ*, 275; *Harrianceps*, 112; *Hemptinne*, 47; *Hibernia*, 227; *Helius*, 140; *Imperatrix Regina*, 213; *Jessica*, 275; *Lady Roberts*, 227; *lilacina*, 30; *Mantinensis*, 140; *Memoria H. A. Tracy*, 6; *Miss Locke*, 56; *Mrs. Donald*

- MacMaster, 6; rubiginosa, 5; Salmonea, 213; Schröderascens, 210; Thyone, 55; Urania, 291; Valeria, 150; Venusta, 5; Whiteæ, 228.
- Liparis nana, 147, 153; lacerata, 246.
- Lissochilus Horsfallii, 100, 223; L. streptopetalus, 215.
- Listrostachys Brownii, 253; fimbriata, 253; Montroei, 254.
- Maxillaria fucata, 97; Fletcheriana, 191; tenuifolia, 1.
- Manchester Orchid Society, 24, 48, 72, 96, 119, 144, 168, 192, 220, 244, 268, 292.
- Mexican Lælias, 28.
- Miltonia hybrids, 202; Charlesworthii, 219; Regnellii, 26; Schröderiana, 153; Warscewiczii, as a parent, 277.
- Miltonioda Cooperi, 254.
- Mystacidium gracillimum, 227.
- Nomenclature, 30, 33, 56, 76, 102.
- Notes, 1, 25, 49, 73, 97, 121, 145, 169, 193, 221, 245, 269.
- Obituary:—J. S. Bergheim, 2; W. Kalbreyer, 26; A. Ryall, 124.
- Odontioda Brewii, 255; daltonensis, 184; Desdemona, 275; Edith, 184; Hebe, 255; Hemptinneana, 275; Kitty, 151; Margarita, 23; Mossiæ, 151; Penelope, 213; Red Riding Hood, 150; Stella, 254.
- Odontocidium Edwardatum, 149.
- Odontonia Cybele, 151; Firminii, 117; Lango-woyi, 150; Magali Sander, 254.
- Odontoglossum Anthocrene, 149; Atalanta, 275; auriculatum aureum, 270; Aurora, 69; Bronze Prince, 254; Calypso, 140; Cassandra, 140; Cervantesii, 172; Chieftain, 213; Clare, 140; Cleopatra, 140, 149; Conqueror, 213; cristatum, 2; Daisy, 184; Don, 140; Dema, 228; Dido, 149; Demetria, 184; Endymion, 213; George Day, 117; Harwoodii, 93; Hermione, 255; Hyperion, 254; James O'Brien, 150; Lawrecrispum, 151; lucidum, 213; luminosum, 213; maculatorei, 112; Minerva, 255; Neptune, 23; Rossi, hybrids of, 44; Saturne, 151; scintillans, 55; triumphosum, 184; Vesta, 254; Woodroffeæ, 23.
- Odontoglossum crispum, cultivation of, 39; propagation of, 35.
- Oncidioda bella, 228; cinnabarina, 95; Cooksoniæ, 123; Marjorie, 56.
- Oncidium bidentatum, 227; McBeanianum, 213; microchilum, 273.
- Ophrys apifera, 196; arachnites, 246.
- Orchid baskets, 3; Breeding, 86, 103, 105; collecting, 174; Conference of 1885, 6; of 1913, 75, 93; houses, 3; hunting, 126; Exhibition at Calcutta, 173; sale, 170, 200, 241.
- Orchid collections:—Ashlands, 175; Barrack-pore, 201; Broadlands, 235; Brunoy, 125; Bush Hill Park, 38; Cooksbridge, 114; Heightside, 184; Marlfield, 207; Palmerston North, 80; San Francisco, 248; South Lodge, 32; West Bank, 10; Wilderspool, 157.
- Orchids: Their Popularity and Culture, 135.
- Orchids for Amateurs, 110, 162, 163, 179, 238, 258, 283.
- Orchids of Selangor, 269; of Western Australia, 97.
- Osmunda fibre, 8.
- Parthenogenesis, 98, 122.
- Phalænopsis intermedia Portei, 92.
- Pollen, theft of, 148, 171, 193, 246.
- Rhynchostylis retusa alba, 74.
- Rodriguezia secunda, 273.
- Royal Horticultural Society, 21, 44, 67, 93, 116, 141, 165, 188, 215, 241, 265, 289.
- Russian Orchid Book, 274.
- Russian Orchid Society, 75.
- Sander Cup Group, 204.
- Schombolælia Tibibrosa, 275.
- Serrated flowers, 169.
- Shading, 152.
- Sobralia macrantha, 230; m. alba, 195.
- Soprocattlælia carna, 94; Venus, 228.
- Stanhopea convoluta, 269.
- Stelis barbata, 226.
- Synanthic flowers, 25.
- Then and now, 148.
- Treatment of old plants, 18.
- Vanda cœrulea, 248, 270; Marguerite Maron, 272; Sanderiana, 225.
- Vanilla cultivation, 222.
- Veitch, Messrs. James: their Orchid Collectors, 262; Orchid species, 278.
- Yorkshire Gala, 244.

ILLUSTRATIONS.

- Aerides Sanderiana*, 225.
Angræcum sesquipedale, 195.
Brasso-Cattleya Menda, 138.
 Bush Hill Park, 234.
Calanthes, 109.
Cattleya A. Dimmock, 13; *Bowringiana*, 155;
 Comet "Princess Mary," 51; *Dirce*
 magnifica, 287; *Gaskelliana alba*, 14;
 Lord Rothschild albescens, 137; *Madame*
 le Doux, 211; *Oberon*, 236; *Rhoda*
 illuminata, 20; *Schröderæ*, 82; *Trianae*,
 31; *Warscewiczii*, 272.
Cattleya house at Cooksbridge, 115.
Cœlogyne Sanderiana, 273.
Cymbidium Humblotii, 172; *insigne*, 130;
 Lowianum, 131; *Pauwelsii*, 185; *Wigan-*
 ianum, 129.
Cypripedium Boltonii, 160; *callosum Sanderæ*,
 4; *caudatum*, 182; *Godefroyæ leucochilum*
 Hodgkinsonii, 177; *insigne Sanderæ*, 159,
 164; *Rolfei*, 178; *Roundhead*, 171;
 Viking, 77.
Cypripedium house at Southport, 124.
Dendrobium Dalhousieanum, 196; *nobile*
 virginale, 88; *Schützei*, 19; *thyrsiflorum*,
 127; *undulatum*, 29.
Epi-Lælia Australia, 276.
Lælia Gouldiana, 99.
Lælio-Cattleya Helius, 140; *McBeaniana*, 156;
 St. Gothard, 288.
Lambeau Gold Medal, 207.
Liparis nana, 147.
Lissochilus Horsfallii, 100, 101, 223.
Maxillaria grandiflora, 111.
Miltonia Phalænopsis "McBean's var.," 203;
 vexillaria "G. D. Owen," 202; v.
 "Snowflake," 37; *Schröderiana*, 153.
Odontioda Boltonii, 158.
Odontoglossum ardentissimum Robsonæ, 176;
 Empress of India, 212, 240; *eximium*
 "Alpha," 181; *Georgius Rex*, 212;
 Harwoodii "The Shrubbery var.," 92;
 Jeannette, 44; *Lady Pirrie*, 209; *Mrs.*
 Carlisle, 208.
Odontoglossums, propagation of, 35.
Odontonia Cybele, 151; *Langowoyi*, 150.
 Orchid group, 205, 232; house at Barrackpore,
 201; house at Brussels, 152.
Osmunda fibre collecting, 8, 9.
Phalænopsis, 271; *Aphrodite*, 123.
 Portraits:—R. Ashworth, 175; E. R. Ashton,
 235; J. S. Bergheim, 2; Wm. Bolton,
 157; D. S. Brown, 194; Mr. and Mrs. le
 Doux, 207.
Rhynchostylis retusa alba, 74.
Sobralia macrantha alba, 231.
Vanda Sanderiana, 225.
 Winter flowering hybrids, 113.





